IBM Tealeaf cxImpact
Version 9
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Tealeaf Reporting Guide

Note
Before using this information and the product it supports, read the information in "Notices" on page 175.

This edition applies to version 9, release 0, modification 0 of IBM Tealeaf cxImpact and to all subsequent releases and modifications until otherwise indicated in new editions.

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Tealeaf Reporting Guide

The Tealeaf® Reporting Guide provides a comprehensive overview of Tealeaf reporting features and reports that are provided by Tealeaf in your solution. Use the following links to access specific topics in the manual.

- For more information about using the Tealeaf Portal, see the *IBM Tealeaf cxImpact User Manual*.

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Chapter 1. Overview of Tealeaf Reporting

Through the Portal, Tealeaf users and administrators can access and create reports to monitor data that is captured by Tealeaf and the Tealeaf suite of applications. Tealeaf provides a set of predefined reports that enable rapid access to aggregated counts, sums, and averages of important metrics on your web application. These reports provide immediate value to the Tealeaf solution and you can ask and answer key questions about application issues, overall health, and performance.

The Tealeaf reporting solution provides regular collection of data, which is rapidly gathered and aggregated for insertion into the Tealeaf databases. This data is immediately available for use in reporting.

This information provides an overview of reports that are provided by Tealeaf and how Tealeaf users can quickly create insightful reports through the Tealeaf Portal. Additional information is provided on how data is captured and aggregated for reporting purposes.

Overview of Tealeaf Data

When visitor session data is captured by the Passive Capture Application, it is forwarded to a Processing Server, where additional processing is done to analyze its contents for, among other things, reporting. As hits are processed, the Processing Server maintains counts of individual events and other session-related data. At 5 minute intervals, these counts are gathered from the Processing Server and sorted into hourly buckets within the Reporting database. This data is then available for reporting.

- See "Tealeaf Data Flow" in the *IBM Tealeaf cxImpact User Manual*.

Tealeaf Data for Reporting

For reporting purposes, the key Tealeaf data objects are events, dimensions, hit attributes, and session attributes. These user-created entities can be designed to monitor key metrics in your web application and in the Tealeaf system itself.

Term **Description**

Session Attribute

A session attribute is a variable that is associated with the session that can be updated during or after the session is complete. For example, Tealeaf provides a session attribute to track the login identifier of visitors to your web application. After this session attribute is properly configured, it contains the login identifier as soon as it is detected. See "TEM Session Attributes Tab" in the *IBM Tealeaf Event Manager Manual*.

- For more information about configuring the login identifier, see "E2E Scenario - Configure Login ID to be Searchable" in the *IBM Tealeaf cxImpact User Manual*.

Hit Attribute

A hit attribute is a pattern of text that occurs in an individual request or response. For example, you can create a hit attribute to detect for the presence of your web application's error message, such as "Uh-oh, an error!", in the response. See "TEM Hit Attributes Tab" in the *IBM Tealeaf Event Manager Manual*.

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Event An event is a marker for a condition in the session data. You can create events to monitor session size, length in seconds, and many more metrics. Additionally, you can use events to tabulate the counts of specific patterns in the data. For example, you can create an event that is triggered based on the "Uh-oh, an error!" hit attribute. For reporting purposes, you can then tabulate the count of these errors in your visitors' sessions. See "TEM Events Tab" in the *IBM Tealeaf Event Manager Manual*.

Dimension
A dimension is contextual information that is captured as part of the recording of an event. For example, if you have created the event to detect for the presence of "Uh-oh, an error!" on the page, you can associate a dimension with the event to record the URL where the error occurred. This dimensional data is recorded with the event when it occurs. See "TEM Dimensions Tab" in the *IBM Tealeaf Event Manager Manual*.

For more information about Tealeaf data objects, see "Tealeaf Data Model" in the *IBM Tealeaf Reporting Guide*.

Packaged Reports

Tealeaf provides a number of reports to enable users to quickly discover value in the Tealeaf solution without requiring the additional configuration of any data objects. These packaged reports provide useful insight into the sessions, events, visitors, and activities on your web application.

- See Chapter 5, “Reports Provided by Tealeaf,” on page 165.

Type **Description**

Event Activity
This Portal report enables review of counts of active events. See “Event Activity” on page 42.

Activity Reports
These reports summarize sessions, events, and web application performance metrics. See “Activity Reports” on page 22.

- Tealeaf provides a dashboard that summarizes web application performance issues that are contained in the Activity reports. See “Technical Site Metrics Dashboard” on page 92.

Performance Reports
These reports provide insight into client-server performance between your visitors' web browsers and your web server. See “Analyzing Performance” on page 70.

Reporting for Tealeaf Administrators

Through the Tealeaf Portal, administrators of the system can access a number of reports, which can be used to monitor overall system health and also to diagnose specific issues with the Tealeaf solution.

- See "Reporting for Tealeaf Administrators" in the *IBM Tealeaf cxImpact Administration Manual*.

Types of Tealeaf Reporting

You can create reports with the different options available in the Tealeaf Portal.

Tealeaf Report Builder

After you acquire some understanding of the available data objects and their functions, you can begin building your own ad hoc reports through the Portal. The Tealeaf Report Builder provides a simple, drag-and-drop interface through which you can add events and dimensions to create interesting perspectives on the visitors and their behaviors within your web application.

- See Chapter 3, “Tealeaf Report Builder,” on page 105.

Top Movers Reports

Top Movers can be configured to monitor the changes in key metrics over time for your site. For example, if you are interested in session size, you can create a Top Mover to monitor the changes in session size over time. Through a reporting interface that is similar to the Tealeaf Report Builder, you can create reports to monitor these changes so that spikes and valleys in expected size can be quickly identified and managed before they become issues.

- See “Analyzing Top Movers” on page 45.

Scorecards and Dashboards

If you have licensed cxView, you can create scorecards and dashboards that are based on the report components that you create in the Tealeaf Report Builder. These visual report cards can be generated as needed and delivered to stakeholders on a regularly scheduled basis. They are also available as needed through the Portal.

- See "Using Scorecards" in the *IBM Tealeaf cxView User Manual*.
- See "Using Dashboards" in the *IBM Tealeaf cxView User Manual*.

Tealeaf Visitor Report Builder

Note: The Tealeaf Visitor Report Builder is a component of cxResults, a separately licensable component of the Tealeaf CX platform. For more information, please contact your IBM Tealeaf representative.

For cxResults, Tealeaf provides a separate reporting tool, which enables ad-hoc reporting capabilities similar to the cxImpact Report Builder. Using a set of sessions that you define, you can apply events and ratios to identify key visitor-based criteria that affect your customers.

- See "Tealeaf Visitor Report Builder" in the *IBM Tealeaf cxResults User Manual*.

Scheduling Reports

As needed, reports created in the Tealeaf Report Builder or in the Top Mover reporting tool can be scheduled for execution and delivery to interested stakeholders.

- See Chapter 4, “Report Manager,” on page 151.

Tealeaf Databases

Aggregated reporting data is stored in SQL Server databases.

Product

Description

cxImpact

cxImpact session data is aggregated and stored in the Reporting database. Additional performance information about the Tealeaf system is stored in the Statistics database.

- See "CX Databases" in the *IBM Tealeaf Databases Guide*.

cxReveal

Through the cxReveal database, Tealeaf users have much more rapid access to sessions based on captured and tracked session attributes, which are stored for searching in the database.

Note: The cxReveal database is a component of cxReveal, a separately licensable component of the Tealeaf CX platform. For more information, please contact your IBM Tealeaf representative.

- See "cxReveal Database" in the *IBM Tealeaf Databases Guide*.

cxResults

Reporting data is extracted and inserted into the Visitor databases in a two-step process. In the first step, session data is extracted by the Visitor Database Extractor and inserted in the Staging database. Later, data in this database is inserted into the Reporting database, from which all cxResults reports are derived.

Note: The Visitor database is a component of cxResults, a separately licensable component of the Tealeaf CX platform. For more information, please contact your IBM Tealeaf representative.

- See "cxResults Databases" in the *IBM Tealeaf Databases Guide*.

Gathering Report Data

Depending on the Tealeaf products in use, reporting data is gathered by an independent service at regularly scheduled intervals and inserted into the database for immediate reporting availability.

Data Collector

Every 5 minutes, the Data Collector polls each Processing Server for the counts of events, hit attributes, and session attributes. This independent process typically requires no additional configuration.

Tealeaf administrators can configure the Data Collector features and performance by using a number of Portal-accessible settings.

- See "Data Aggregation and Retention" in the *IBM Tealeaf cxImpact Administration Manual*.
- For more information about all Data Collector settings, see "CX Settings" in the *IBM Tealeaf cxImpact Administration Manual*.

The Data Collector can be monitored through the Tealeaf Portal. See "Managing Tealeaf Servers" in the *IBM Tealeaf cxImpact Administration Manual*.

Visitor Database Extractor

Note: The Visitor Database Extractor is a component of cxResults, a separately licensable component of the Tealeaf CX platform. For more information, please contact your IBM Tealeaf representative.

If you have licensed cxResults, a separate service is used to extract session and event data from the Processing Servers and insert them into the cxResults database. Every fifteen minutes, the Visitor Database Extractor is launched to perform this extraction and insertion of the available sessions and events.

The Visitor Database Extractor is managed through the Tealeaf Scheduling Service, which can be enabled and configured by Tealeaf administrators.

- See "Configuring the Scheduling Service" in the *IBM Tealeaf CX Configuration Manual*.
- For more information on configuring the Visitor Database Extractor, see "cxResults Settings" in the *IBM Tealeaf cxImpact Administration Manual*.

Tealeaf Data Model

Tealeaf Report Builder uses a dimensional data model that is populated by event-based mechanisms to deliver a reporting facility of unprecedented power and flexibility to manage the customer experience of your web application.

- Events and event-related mechanisms are developed and tested through the Tealeaf Event Manager, which is integrated into the Tealeaf Portal. See "Tealeaf Event Manager" in the *IBM Tealeaf Event Manager Manual*.

This information provides an overview of the conceptual terms and data relationships of the Tealeaf event and report data model.

- For long-time Tealeaf users, the following sections include information about how the report data model has transitioned from Release 7.x to the current version.

Structural Overview

An *event* is a condition that is detected in the session data stream that triggers an action. See “Events” on page 9.

- A *hit attribute* is a specified start tag and end tag in session data that can be referenced as a condition for one or more events. Hit Attributes can also be explicit text strings in the data.

  Note: Hit Attributes are not directly applicable to reporting. Hit Attributes are defined in the Tealeaf Event Manager. See "TEM Hit Attributes Tab" in the *IBM Tealeaf Event Manager Manual*.

An event is associated with one or more *report groups*, which are collections of dimensions on which you can report simultaneously. See “Report Groups” on page 15.

- A *dimension* is a list of values associated with an event. This list of values can be fixed or can be generated from the session data stream every hour. See “Dimensions” on page 16.
- A *fact* is the data entity that combines an *event* and a *report group*. Facts are the essential storage mechanism for reporting data. See “Facts” on page 17.
  - Some facts can have *fact values*, which are event instance data that can be configured in the event definition. See “Fact Values” on page 18.
- A *label* is a grouping mechanism for event and dimension objects. You can organize a set of related objects under a single label. Labels have no impact on data processing.

Basics

Tealeaf captures all HTTP or HTTPS transactions between the visitors to your web application and the servers that serve the application to them. Each request from the visitor and the corresponding response from the web server are forwarded to Tealeaf for capture, processing, analysis, and reporting.

- A *request* is a message that is sent from the client, typically the visitor's browser, to the server for one or more files.
- A *response* is the information that is sent from the web server back to the client. Any binary content in the response is typically dropped from Tealeaf capture.

A single request and a single response together form a*hit* , which is the basic unit of capture in Tealeaf.

The sequence of hits that are captured from a single visitor's contiguous experience with your web application is a*session*.

- See "Tealeaf Basics" in the *IBM Tealeaf Basics*.

Thinking about Events

Before you begin building events, you must spend some time considering how events can be used to model the business processes reflected in your web application. This information provides some up-front considerations in how to build events to manage important categories of information about your web application.

KPIs

Key Performance Indicators (KPIs) are the metrics that you define for measuring success toward strategic goals. Before you begin, you must attempt to identify conceptually what are the metrics to determine whether your web application is pursuing and reaching enterprise goals. These goals can include:

- Increase revenue from the site
- Increase brand awareness among visitors
- Increase the size of your site user base
- Decrease the volume of calls in your call center.

Specific goals include the following metrics:

- Conversion rates for the checkout process
- Average order value
- Percentage of search engine searches that use a sponsored or branded keyword
- Site registrations per campaign clickthrough
- Average number of call center calls per site visit

You can also use KPIs to identify aspects of the site that did not work, such as:

- Number of declined credit cards
- General failures to convert business process (start process but never complete)
- Server generation time takes too long
- Application-level errors
- System errors

Sometimes, identifying these conditions for building events to track them is not intuitive. For example, depending on how your web application is constructed, the basic user event of "abandon checkout process" can include the following events as failure steps:

- Moving back to product pages
- Clicking a Contact Us link
- Opening FAQ pages

If you are can develop separate events on these items and then consolidate them into a single "Abandon Process" event, you can quickly analyze the most common sources of customer abandonment.

- You can also create events that are identified as abandoned, but the reason for which is not known. For example, you can create an event checks for the general abandonment condition and the NOT conditions of the identified methods of abandonment. By identifying the unknown, you can begin to explore the reasons why it is not known.

KPIs are typically defined as one or more linked events, which are surfaced in reports or scorecards.

Note: cxView supports the development and publication of KPI scorecards. See "Configuring KPI Scorecards" in the *IBM Tealeaf cxView User Manual*.

Tealeaf provides an end-to-end scenario to describe how to monitor an example shopping cart process and to generate reporting on it.

- See "E2E Scenario - Create Conversion Rate Dashboard" in the *IBM Tealeaf cxImpact User Manual*.

Errors

Tealeaf is useful for monitoring and reporting on errors that are encountered during a visitor's experience with your web application. Errors can be categorized into the following types:

Type **Description**

System errors

Tealeaf provides a set of events for tracking HTTP Status Code errors (4xx/5xx). These events are enabled by default.

- See "Tealeaf Standard Event Object Reference" in the *IBM Tealeaf Event Manager Manual*.
- You can explore how to use these events through the end-to-end scenarios. See “E2E Scenario - Getting Value out of Tealeaf in One Hour” on page 23.

Application errors

These errors typically cause an error message to be generated and displayed in the response for visitors to your web application. Since these errors are specific to the web application, no default events are provided.

- Example application errors include JavaScript errors, other code exceptions, and services or APIs being unavailable.

Business rule errors

Business rule errors are violations of how data is expected to be submitted, which can result in things like rejected credit card numbers.

Usability errors

Usability errors are typically issues in which the submitted data fails validation, such as when a required form field is submitted with an empty value.

The preceding categorization covers a broad range of potential issues with any web application. As part of your event development, you must look to group errors into categories, by using group lists. For example, suppose that your web application generates over 2000 error messages. You can group error messages into categories to simplify reporting. Instead of looking at individual log error messages, for example, report consumers can analyze the counts of log error messages in reporting.

- Error messages can be categorized by storing their values in a dimension, which uses group lists to define the groupings of values.
- The error messages can be uploaded by a tab-delimited file to populate the available dimension values.
- See "TEM Dimensions Tab" in the *IBM Tealeaf Event Manager Manual*.

UI Capture tracking

If you are using the UI Capture solution to track events in the client interface, you can create events to capture and record these actions for reporting. Since the data that is submitted to Tealeaf from the client interface is different from the data that is submitted through standard browser capture, you may be required to create special events for these actions and, if desired, other events to normalize them to your standard reporting data.

- When creating events from UI Capture data, verify that your events are configured to match on the `Last Match Per Hit` value.
- The value of these events can be used to populate dimensions.
- Particularly for form fields, UI Capture can be instrumental in identifying areas of customer struggle, allowing you to redesign the sequence of fields or remove unused or confusing fields.

For more information on UI Capture, see the *IBM Tealeaf UI Capture for j2 Guide*.

Performance Monitoring

Tealeaf provides several events for monitoring application performance. These events enable tracking of the following types of application performance metrics:

- ReqCancelled by client or by server
- Server generation time
- Network time
- Roundtrip time
- Render time

Note: Some of the preceding metrics are not available in standard HTML traffic. You must deploy the UI Capture solution to track render time in the client. See the *IBM Tealeaf UI Capture for j2 Guide*.

Through Tealeaf reporting, you can compute average, minimum, and maximum values for these metrics. These reports are available through a separate reporting interface.

- See “Analyzing Performance” on page 70.

These events can be linked to other business process or performance events. For example, you can track the frequency of incidents when a large render time resulted in a client-initiated ReqCancelled event. Those events can then be correlated to your abandonment processes to identify if visitors are quitting because of performance issues and whether those issues apply to a specific page.

- For more information about multi-dimensional reporting, see Chapter 3, “Tealeaf Report Builder,” on page 105.

Segmentation

In Release 8, you can use dimensions to identify poor or well-performing segments. Example segments include:

- Process flows/abandonment
- Visitor acquisition (campaign, keywords) tracking
- Technical delivery of content that is based on browser version, platform, operating system, and so on.
- Different landing pages
- Internal marketing campaigns
- Internal search/failed search tracking
- Third party tools or site tools usage
- Customer profiling and loyalty
- Multi-channel conversion
- Time-of-day analysis
  - Tealeaf provides a number of default calendar dimensions. See "TEM Dimensions Tab" in the *IBM Tealeaf Event Manager Manual*.

Before you begin, you must consider the segments of your users that you want to analyze in reporting, which drive the events that you create and enable in Tealeaf.

Events

When triggered, an *event* is a situation or condition that is identified in data that is captured by Tealeaf that causes an action. An event definition specifies the hit attribute or other data that must appear in the request, response, or session as a whole. Using an event, you can detect and report on one or more conditions that occur in a single session.

- Events do not work across multiple sessions.

An event is defined as a combination of a trigger, a condition (such as a matching hit attribute), and an action. For example, an event can be configured to trigger at the start of a page to look for a specific set of HTML tags in the response and, if the tags are found, to store the value in between the tags.

- A Tealeaf event can be the appearance or absence of a specific data element or value in the request or the response.
- Resulting actions can include setting values and generating alerts.

Some events are specific to a hit, while others can be processed only with the entire session in hand. As each hit is added to a session in the Short-Term Canister, event definitions are compared against the data in the hit. When a session ends and is written to the Long-Term Canister, events that are associated with an entire session are evaluated.

Event Definitions

An event is defined as a combination of:

1. *Trigger* - The page- or session-level state at when the event is evaluated. See "Trigger" on page 12.
2. *Condition* - The event, session attribute, or hit attribute that is searched for in the session data. If the condition is detected, the event fires, and the specified value or values are recorded. See "Condition" on page 12.
3. *Action* - The data to record and the method of recording. The specification of the action indicates the type of value and the instance of it to record to the database. Event-related data is written to the Short-Term Canister and may be aggregated into the reporting database.
   - Recorded values can be used in reporting or to trigger a condition in a later event. See "Action" on page 13.
4. *Dimensions* - In addition to the values stored with an event, such as the current value of the shopping cart, an event can store other contextual information available at the time of the event. These contextual dimensions can include values such as the username, the browser type, or almost any data from a tracked data set. See "Dimensions" on page 16.

Event Relationships

The following diagram shows how the event-related components relate to the reporting capabilities of the Report Builder. Each event is defined by the trigger, the condition, the action, and values and dimensions to record.

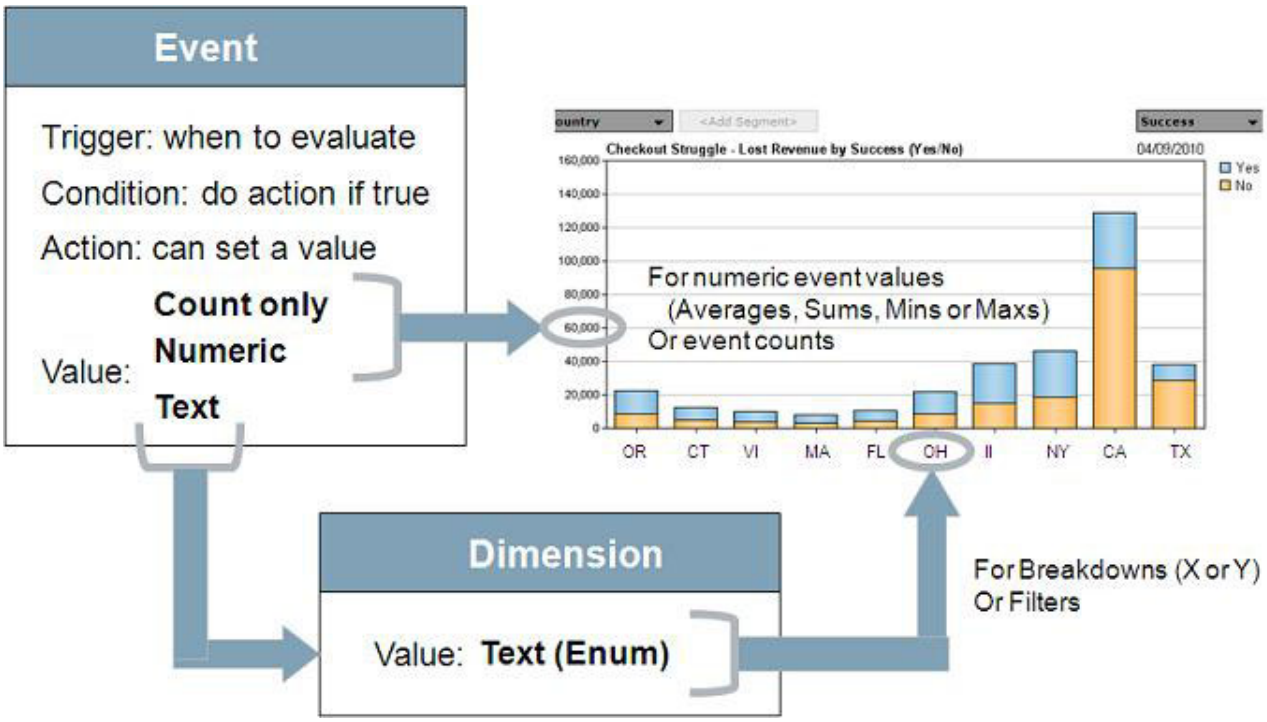

Figure 1. Event Objects

Values can be a count, a numeric value, or a text string.

- Numeric values that are associated with the events can be graphed in the Report Builder.
- The text values can be used as instances of a dimension.

Based upon when evaluation of an event occurs, conditions can depend on different data objects. Since some events are contingent upon various combinations

of hit attributes or other events, the Event Manager provides for various combinations of conditions, as shown in the following diagram.

Note: In practice, almost all conditions are based upon a text pattern that appears in the data stream.

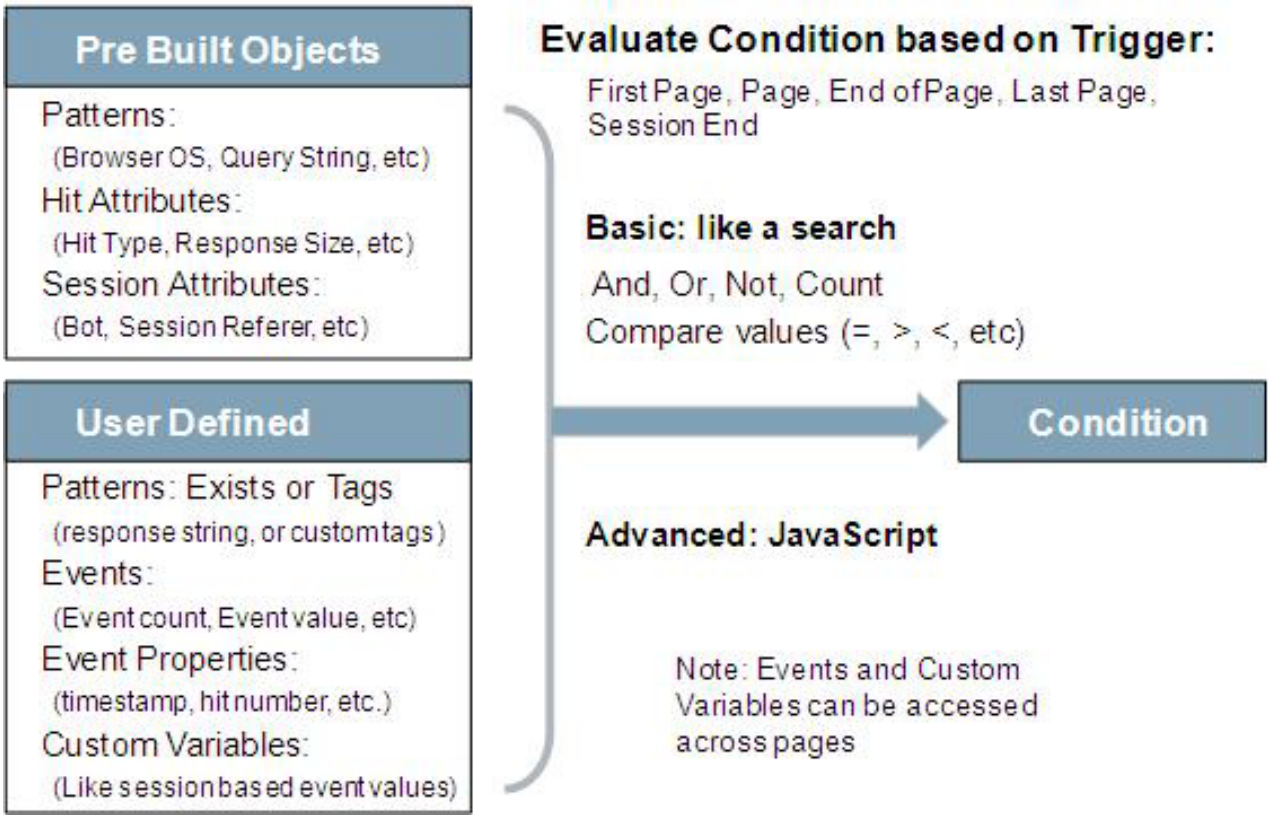

Figure 2. Tealeaf Event Conditions

Session attributes: In addition to managing events, hit attributes, and dimensions, the Event Manager also enables configuration of session attributes that can be read and set by events, which are used in alerts fired based upon events, and tracking of major movers (deviations).

- A session attribute is similar to a custom session attribute or UserDef (user-defined variable) in earlier Tealeaf versions. Session attributes are used to save interesting session state information with the session for later conditions or reporting. See "TEM Session Attributes Tab" in the *IBM Tealeaf Event Manager Manual*.

Event Types

Tealeaf supports two types of events:

1. *Standard Event:* A typical event is triggered based on pattern data that is detected in the capture stream.
2. *Canister Event:* Associated with each session in the Canister, Tealeaf maintains a set of events that track useful session-related information for you. These events cannot be configured. You can create alerts that are based on them. See “Alerts” on page 14.

Through the Tealeaf Event Manager, you can create events.

- See "Tealeaf Event Manager" in the *IBM Tealeaf Event Manager Manual*.

An event can also be a combination of one or more other events. For example, if the visitor received a specific error code and completed a purchase, you can record the occurrence of that event.

- You can create an alert that is based on an event firing. Alerts deliver information to Tealeaf users in one of multiple formats. See “Alerts” on page 14.

Event Components

This information describes the components of an event.

Trigger: An event can be triggered in any of the following situations, which are listed in the order of occurrence during a visitor session:

Trigger Description

`First Hit of Session`
Evaluated when a new visitor's session begins.

`Every Hit`
Evaluated before any part of a new hit is evaluated.

`After Every Hit`
Evaluated after all parts of a hit are evaluated.

`Last Hit`
Evaluated after the last hit of the session is captured and evaluated.

`End of Session`
Evaluated when a visitor's session ends, either as defined by event or system timeout.

Triggers are defined in the Event Wizard of the Tealeaf Event Manager. See "TEM Events Tab" in the *IBM Tealeaf Event Manager Manual*.

Condition: The condition defines the event, hit attribute, or session attribute that is searched in the session data. This data element is evaluated against criteria you define to yield a `true` or `false` value.

The conditions are evaluated at the Trigger time and are based upon the context. There are two contexts: one for the hit triggers and one at session end.

- *Hit conditions* include any text patterns in the current hit, the existence or value of any event that occur in the session, or any session attributes defined.
- *Event conditions* exclude the ability to evaluate hit attributes that occur in any hit but include support for the other conditions.

Evaluation criteria depend on the type of data.

- Conditions that evaluate numeric data have comparison and equivalency operators, null tests, and inclusion/exclusion tests. You can test first, last, count, and found patterns of the numeric data.
- Conditions that evaluate text data have equivalency operators, null tests, and inclusion/exclusion tests.

Conditions that evaluate as `true` cause the action that is specified in the event to be taken. See “Action” on page 13.

Conditions are defined in the Event Wizard of the Tealeaf Event Manager. See "TEM Events Tab" in the *IBM Tealeaf Event Manager Manual*.

Event dependencies: As part of the configuration of the conditions for an event, you can require the presence of another event or event value, which creates an event dependency.

There are two available methods for creating dependencies between events:

- *Implicit dependency* - Tealeaf events can be triggered at the start of session, first page, end of page, on the last page or at the end of the session. These discrete points of evaluation can be used to create implied dependencies. For example, you can guarantee that any event configured to trigger on the last page can reference the output generated by any event triggered at the start of the session.
- *Explicit dependency* - As one of the conditions of the event, you can specify that another event or event value must be present. Explicit dependencies are only valid between events that share the same trigger point. For example, an event configured to be triggered at `Every Hit` cannot reference events triggered at `Last Hit`.

Explicit dependencies can be reviewed through the Tealeaf Event Manager. See "TEM Events Tab" in the *IBM Tealeaf Event Manager Manual*.

Action:
In the event action, a value can be stored when the event occurs, which can be the count of the event that occurs, the text or numeric string that is obtained with a hit attribute, or the contents of a previous event value or a session attribute.

The action defines:

1. The value or values that are recorded
   - Values that are tracked for recording are defined in the Event Summary of the Event Wizard of the Event Manager. See "TEM Events Tab" in the *IBM Tealeaf Event Manager Manual*.
   - Values that are recorded are defined in the Value step of the Event Wizard of the Event Manager. See "TEM Events Tab" in the *IBM Tealeaf Event Manager Manual*.
2. The availability of the data for search and reporting
3. The session attributes populated by the event value
   - Actions are defined in the More Options step of the Event Wizard of the Tealeaf Event Manager. See "TEM Events Tab" in the *IBM Tealeaf Event Manager Manual*.
4. The report group or groups that are associated with the event. See “Dimensions” on page 16.
   - The reports groups that are associated with the event are defined in the Report Groups step of the Event Wizard of the Tealeaf Event Manager. See "TEM Events Tab" in the *IBM Tealeaf Event Manager Manual*.

Event Development

Access to the Event Manager is controlled by the User configuration under Portal Management.

- See "CX User Administration" in the *IBM Tealeaf cxImpact Administration Manual*.

Event testing: Since the number and complexity of events can affect system load, it is important to ensure that events produce the wanted data. The Event Manager includes an integrated tester to test your defined events against session data before it deploys them in the live environment.

- See "Event Tester" in the *IBM Tealeaf Event Manager Manual*.

Event execution: After objects are created or edited with the Tealeaf Event Manager are saved, the event definitions are replicated to the Processing Servers (Canisters) where they are run. Searchable and aggregated reporting data is generated when the event fires. The time lag between saving changes and being able to see results depends on both system configuration and load.

Changes to Events

Events are now defined through the Tealeaf Event Manager in the Tealeaf Portal.

- See "TEM Events Tab" in the *IBM Tealeaf Event Manager Manual*.

The definition of events has changed significantly since Release 7.x. For example:

- Event categories, such as compound session close events and compound page events, have been largely eliminated, in favor of a simpler model that evaluates events that are simply based on where they occur in the session. Events can be organized into event labels, but a label is an organizational structure only.
- Compound events can be created simply by using the outputs of one or more events as inputs to another event. Outputs of page-level events can be mapped to the inputs of page-level or session-level events.
- Event hierarchies have changed. Hierarchies are essentially dependencies between events and are not explicit parent-child relationships. Hierarchies can no longer be necessary because of the potential for multiple triggers for an event.

Alerts

An *alert* is an action triggered off the triggering of an event or off a threshold value for an event. For example, if the number of application errors is tracked in an event, you can configure an alert to trigger off the occurrence of this event (meaning at least one application error has occurred) or off the occurrence of 10 application errors, which can require escalation of the issue.

- Alerts can be triggered off an event.

Based upon the criteria that are defined for the alert, you can trigger any combination of the following actions:

Alert Actions
Description

App Event Log
A log message is inserted into the application event log.

Email An email alert is delivered to a configured list of addresses.

Shell Command
An external shell command that you specify is run.

SNMP An SNMP message is delivered through the configured server.

XML Log File
An XML-formatted log file is generated and saved.

You can configure alerts for:

1. User-defined events
2. Canister events

Alerts are created in the Alerts tab of the Tealeaf Event Manager. For more information about creating alerts, see "TEM Alerts Tab" in the *IBM Tealeaf Event Manager Manual*.

- For more information about enabling the Alert Service, see "Configuring the Alert Service" in the *IBM Tealeaf CX Configuration Manual*.

Changes to Alerts

Other than changes required to support the Release 8.0 data model, alerts have not changed much from Release 7.2.

Alerts are now defined through the Tealeaf Event Manager in the Tealeaf Portal.

- See "TEM Alerts Tab" in the *IBM Tealeaf Event Manager Manual*.

Report Groups

An event can be associated with one or more report groups. A *report group* is a set of dimensions that can be displayed on the same report. A report group can be thought of as the parent of dimensions.

For example, you can create a report group that is called `user agent properties` to contain values for the following properties that are associated with mobile user agents:

- `User agent name`
- `Screen width`
- `Screen height`
- `Javascript support`

In the preceding example, the inclusion of the `user agent name` dimension is useful for combining dimensions into new reports. If another dimension also includes this dimension, then dimensions from each of the two dimensions can be displayed in the same report.

The preceding dimensions are of different data types, yet they can be added to the same report in the Tealeaf Report Builder.

Note: Up to a maximum of 4 dimensions can be displayed in the same report group. Dimensions in the same report group can appear in the same report. Dimensions in different report groups cannot appear in the same report.

Note: Since you can create events and report groups independently, some report groups can not exist for the lifetime of the event. For example, data that is acquired for the same dimension in two different report groups can not be entirely consistent if the dimension was added to one of the report groups after the other one was added. As a result, you can end up trying to pivot on the dimension across report groups for a report period that does not exist in one of the report groups.

All events are automatically aggregated by the `No Dimension Report Group` report group, which cannot be disabled.

- Events can be added to other report groups, as well.

Report Groups for Other Tealeaf Products

Other than cxImpact, some Tealeaf CX products can use report groups and dimensions.

Note: The use of dimensional data in cxResults is not supported in this release.

Changes to Report Groups

In Release 7.x and earlier, report groups did not exist specifically. However, the set of reference dimensions (Path, Server, Host, and Application) and their values essentially constituted a report group that was used to filter reports in the Portal.

Dimensions

A *dimension* is a list of values that are associated with an event. When an event is triggered, the detected value is reported into a dimension.

- The values to detect are configured in the Values tab in the Tealeaf Event Manager. See "Tealeaf Event Manager" in the *IBM Tealeaf Event Manager Manual*.
- The report groups into which the values are reported are specified in the Report tab of the Tealeaf Event Manager.
  - A dimension can belong to multiple report groups, which can be associated with multiple events.
  - See "Tealeaf Event Manager" in the *IBM Tealeaf Event Manager Manual*.

Dimension Types

There are two basic types of dimensions:

Unbounded Lists:
An *unbounded list* dimension type is generated by extracting values in the transaction stream for the dimension and building a list for each hourly time interval. If the limit for the dimension is configured to be 1000, the first 1000 values for a dimension that are detected in an hour become the available dimension values for that dimension during that period. Subsequent values that had not been previously detected during the hour are mapped to a single fixed value, TLT$LIMIT.

Value Lists:
A *value list* dimension type contains a pre-defined set of values that are the only accepted values for the dimension. The list of the states of the United States of America is an example of this type of dimension. When an event fires, the values that are assigned to the event must come from one of these listed values.

Value lists can be of the following types:

Values to Record
Description

`Whitelist + Observed Values`
Record values that are on the whitelist for the dimension, and also as non-blacklisted values detected in the capture stream.

`Whitelist Only`
Record only values that are displayed on the specified whitelist for the dimension.

`Group Lists - Text`
Populate the dimension from a group list of text values that are configured for the dimension.

`Group Lists - Numeric`
Populate the dimension from a group list of numeric values that are configured for the dimension.

Examples

For more information about examples of dimensions, see "TEM Dimensions Tab" in the *IBM Tealeaf Event Manager Manual*.

Changes to Dimensions

In Release 7.1 and Release 7.2, Tealeaf supported the creation and reporting of four sets of references: `TLT_Application`, `TLT_URL`, `TLT_Server`, and `TLT_Host`. Essentially, these reference sets were data dimensions. In earlier releases, these reference dimensions were common to all events.

When the Tealeaf Reference session agent was enabled in the pipeline, you can map detected values for the following dimensions to a predefined list of values. The mapped value was inserted into the corresponding name-value pair in the `[TltRef]` section of the request.

The reference dimensions from earlier releases are available in the following dimensions, which can be added to reports:

Table 1. Changes to Dimensions

Dimension	Old Version	New Version
Application	`TLT_Application`	`Application`
Path	`TLT_URL`	`URL`
Server	`TLT_Server`	`Server`
Host	`TLT_Host`	`Host`

These predefined lists can be generated from values that are detected in session data and logged. Various reports and multiple Tealeaf CX products used these reference dimensions.

The new reporting model provides much greater flexibility in the dimensions that you can use.

For cxResults:

Note: The use of dimensional data in cxResults is not supported in this release.

Facts

A *fact* is a data structure that is generated when an event fires. It contains the triggering event, its value, and the related dimension or dimensions and values.

The fact is the essential data storage structure for Tealeaf reporting. This internal storage mechanism is not directly accessible to Tealeaf users through the Portal.

Note: Any data that is to be visible together in the same report must be stored in the same report group because data is stored at the fact level in the database.

All facts that are associated with an instance of a triggered event contain the same fact value.

- Each fact that is associated with a single event can contain dimension data for a different report group.

Multiple facts can be charted together if they share one or more common dimensions. For example, if two facts share the `DimURL` dimension, then they can be displayed in the same chart.

- Multiple time-based events can always be displayed in the same chart, since they always share time as a dimension-type axis.
- For reports not based on time, the events in them must share a common dimension to be displayed in the same chart.

Changes to Facts

Facts did not exist in Release 7.x or earlier.

Fact Values

Fact values are event instance data that can be configured in the event definition. When an event fires, any data that is found between a specified Start Tag and End Tag in a hit attribute is captured as a fact value and stored in the database. This data can be searched and reported in the Tealeaf Portal.

- Tealeaf fact values can be numeric or text values.
- By default, numeric fact values automatically trigger the computation and recording of the count, sum, average, minimum, and maximum values of the value for each hour.

All facts that are generated by a single event either fire or do not fire, which can be configured through the Tealeaf Event Manager.

- Fact values can be configured to be searchable and reportable in the Report tab of the Tealeaf Event Manager. See "Tealeaf Event Manager" in the *IBM Tealeaf Event Manager Manual*.

Fact Value Types

This information describes the different types of fact values available in Tealeaf.

Count fact values: These fact values are undefined. The count of each triggered event is accumulated for reporting.

Numeric fact values: Numeric fact values are stored at the hourly level. For each hour of numeric fact values, you can apply the following operations to them:

- Sum
- Average
- Min
- Max

String fact values: Any non-numeric fact value is a string fact value. No predefined operations can be completed on detected values.

Changes to Fact Values

In Release 7.x, specific reference values as identified by events were identified by `textfound` values. In Release 8.0, these values correspond to facts, which are event-driven values in a data dimension.

- A fact value is data which is recorded with the triggered event.

Reporting Concepts

Next, to the following common reporting concepts in traditional analytics are listed the Tealeaf equivalent functions.

Analytics
Tealeaf

Slice In Tealeaf, you can create data slices by configuring multi-dimensional reports for specific fact values.

Dice The Tealeaf Report Builder does not currently support data dicing.

Drill Down
Tealeaf enables drill-down on reporting data to the underlying sessions from which the report values were extracted.

Note: Because of query complexity, Tealeaf provides limited support for drill-down when a whitelist or blacklist of values is configured for use with the report. You can drill into whitelists or blacklists limited to 30 values across all Segment dimensions of the report. Drill-down on other configurations, including Top N dimensions, is not supported.

Roll Up
Tealeaf data is aggregated at the hourly and daily level by the Data Collector, which polls the Canister data at scheduled intervals.

Pivot In the Tealeaf Report Builder, you can pivot report data across multiple report groups that share common dimensions.

For more information about building reports, see Chapter 3, "Tealeaf Report Builder," on page 105.

Chapter 2. Analyzing Tealeaf Data

Through the Portal, you can access various flexible reporting and analysis tools, which deliver unprecedented insights into the visitor experience at your website.

The following items are available through the **Analyze** menu in the Tealeaf Portal.

Table 2. Analyzing Tealeaf Data

Item	Analyze Menu Selection	Description
Scorecards	**Scorecards**	Scorecards are on-demand reports on various performance indicators that are related to your site. See "Using Scorecards" in the *IBM Tealeaf cxView User Manual*. **Note:** Scorecard configuration and use are provided with the cxView component. See "Overview of cxView" in the *IBM Tealeaf cxView User Manual*.
Reports	**Report Builder**	Reports are pie charts, line graphs, and bar graphs of event data that is filtered by data, value, and other characteristics. • Tealeaf provides a useful set of reports as part of your installed solution. See Chapter 5, “Reports Provided by Tealeaf,” on page 165. • Some reports can be created and published to other users through the Tealeaf Report Builder. See Chapter 3, “Tealeaf Report Builder,” on page 105.
Events	**Event Activity**	The Event Activity report identifies the total event counts for each event over the specified reporting period. See “Event Activity” on page 42.
Top Movers	**Top Movers**	The Top Movers report provides insight into the deviations from expected values for selected event or dimension values over the preceding four weeks. See “Analyzing Top Movers” on page 45.
General Activity	**Activity Summary**	Activity and Page reports provide technical metrics on your website's usage by visitors. See “Technical Site Metrics Dashboard” on page 92.

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Table 2. Analyzing Tealeaf Data (continued)

Item	Analyze Menu Selection	Description
Segments	**Segments**	The Segments submenu contains reports that are based upon the results of Session or Visitor searches. **Note:** Visitor segment analysis and management are provided with cxResults. cxResults is no longer available as a newly licensed product as of Release 8.7. Customers that licensed cxResults in Release 8.6 and earlier can continue to use and receive support for the product in Release 8.7 and later. For more information, contact Tealeaf Customer Support . • For more information about managing session segments, see "Managing Session Segments" in the *IBM Tealeaf cxResults User Manual*. • For more information about session segment analysis, see "Analyzing Session Segments" in the *IBM Tealeaf cxResults User Manual*. • For more information about managing visitor segments, see "Managing Visitor Segments" in the *IBM Tealeaf cxResults User Manual*. • For more information about visitor segment analysis, see "Analyzing Visitor Segments" in the *IBM Tealeaf cxResults User Manual*.

You can import segments that are created outside of the Tealeaf system. When enabled, the Segment Builder service can be used to create segments, which then be imported through the Tealeaf Portal.

- See "Segment Builder Service" in the *IBM Tealeaf cxConnect for Web Analytics Administration Manual*.

Activity Reports

Through the Portal, you can monitor activities and processing in your Tealeaf system, including the Short and Long Term Canisters and all Tealeaf servers. Through a series of reports, you can keep tabs on overall activities, page and session metrics, page generation and network round-trip times, and counts of visitors and sessions.

These reports are summarized in the Technical Site Metrics dashboard.

Note: These reports can be edited by admin users only. All other users must save the report under a new name and modify the new one.

To access the Technical Site Metrics dashboard:

1. In the Tealeaf Portal, select **Dashboards** > **Technical Site Metrics**.

2. To see the available activity reports, click the**Activity Reports** tab.
   - See "Technical Site Metrics Dashboard" in the *IBM Tealeaf Reporting Guide*.

To see individual reports:

From the Technical Site Metrics dashboard, you can open the underlying report for any displayed dashboard component.

- To see the underlying dashboard, click the **View** ( ) icon. The selected report is opened in the Chapter 3, “Tealeaf Report Builder,” on page 105. Additional information is provided below.
- You can also open any of these reports through the Open command in the Chapter 3, “Tealeaf Report Builder,” on page 105. The names of all activity reports begin with `Activity Report:`.

To configure reports:

Note: The provided Activity reports cannot be edited.

To edit a copy of the report, use the Save As command in the Chapter 3, “Tealeaf Report Builder,” on page 105 toolbar. Make your modifications to the copy.

E2E Scenario - Getting Value out of Tealeaf in One Hour

This information is intended to provide the beginning Tealeaf user with a simple, clear scenario for getting started with Tealeaf. By stepping through this scenario, you can acquire valuable information about your web application, which you can publish to other stakeholders in your organization. You do not require have prior experience with Tealeaf to follow this scenario.

This scenario is intended to be read from start to finish. In another browser window, you can run the steps through the Tealeaf Portal to complete the scenario.

Session Count

Provides a chart of the session activity for the selected time period.

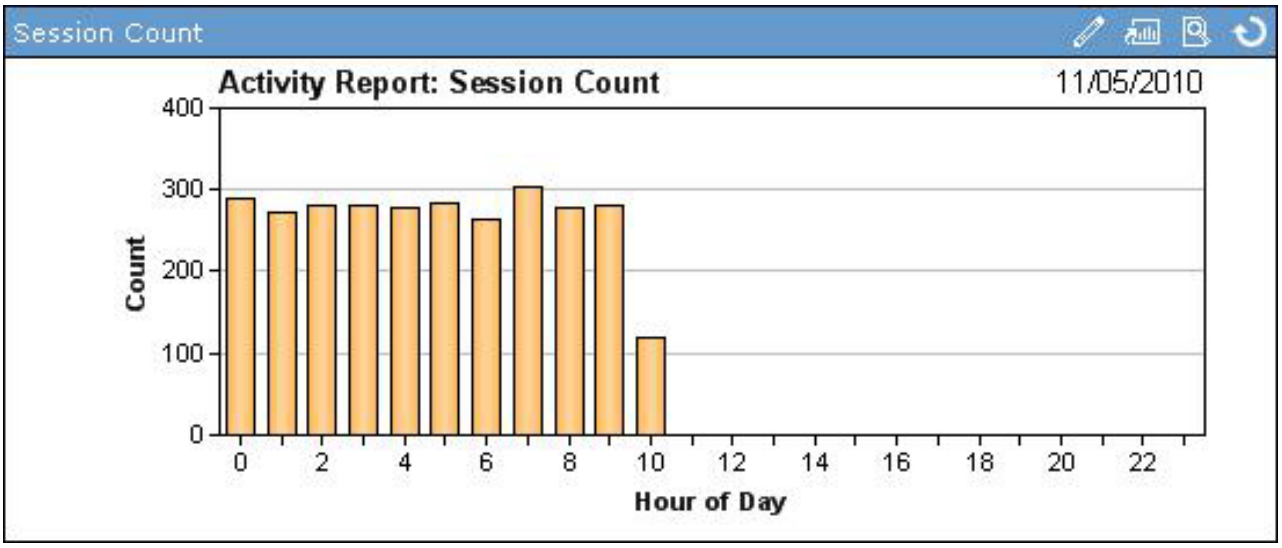


Figure 3. Session Count report

Report configuration:

Type **Configuration**

Events/Ratios
Event: `Session Count`

X-axis none

Y-axis none

Segment
none

Period Current date

Detail table:

Field **Description**

`Hour of Day`
Report data is organized into hourly buckets.

- When the reporting period is the current date, only the data for the hours that is captured and processed is available for reporting.

`Session Count`
Total number of sessions that are counted in the hour

- Click the link to search for all sessions that are completed within the hour. See "Searching Session Data" in the *IBM Tealeaf cxImpact User Manual*.

Hit Count

Provides a chart of the hit activity for the selected time period.

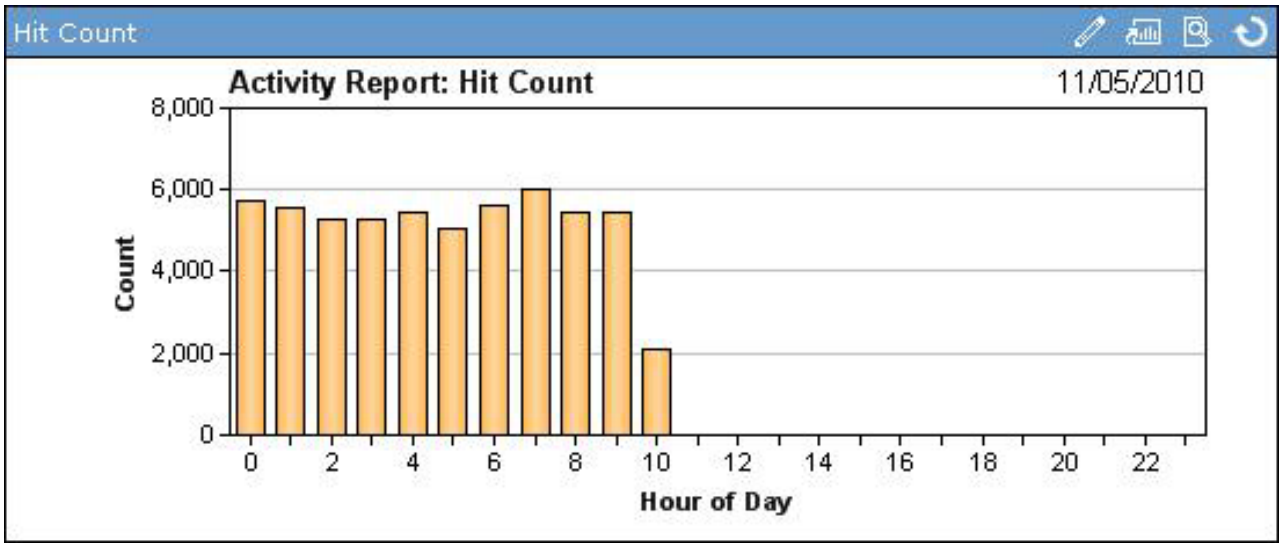


Figure 4. Hit Count report

Report configuration:

Type **Configuration**

Events/Ratios
Event: `Hit Count`

X-axis none

Y-axis none

Segment
none

Period Current date

Detail table:

Field **Description**

`Hour of Day`
Report data is organized into hourly buckets.

- When the reporting period is the current date, only the data for the hours that is captured and processed is available for reporting.

`Hit Count`
Total number of hits that are counted in the hour

- Click the link to search for all sessions that are completed within the hour. See "Searching Session Data" in the *IBM Tealeaf cxImpact User Manual*.

Page Count

Displays the total page counts over each hour of the selected date.

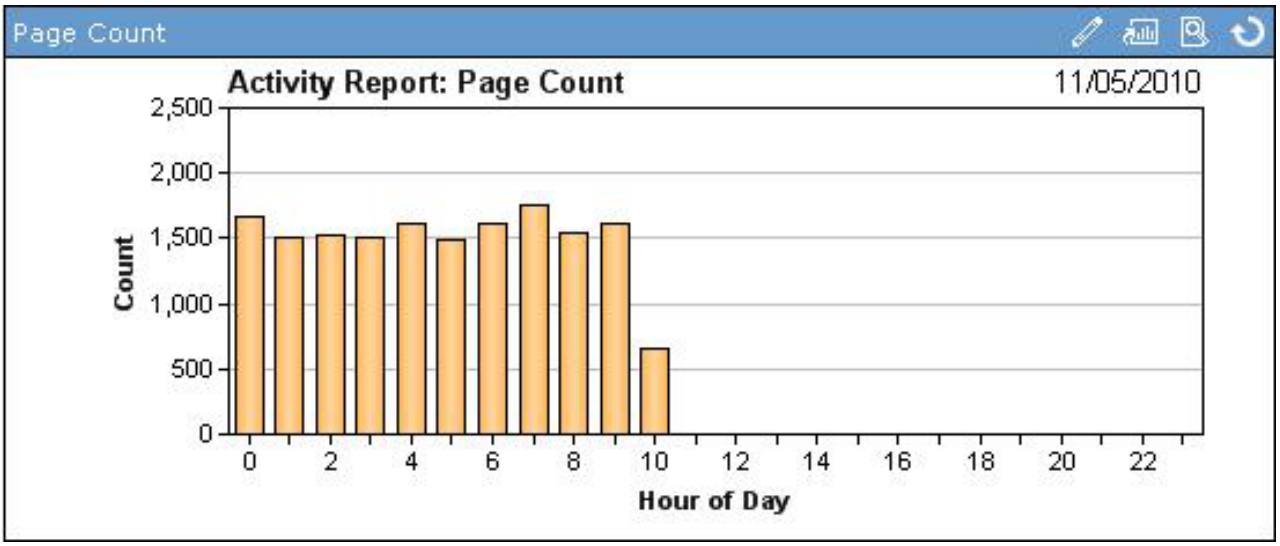


Figure 5. Page Count report

Report configuration:

Type **Configuration**

Events/Ratios
Event: `Page Count`

X-axis none

Y-axis none

Segment
none

Period Current date

Detail table:

Field **Description**

`Hour of Day`
Report data is organized into hourly buckets.

- When the reporting period is the current date, only the data for the hours that are captured and processed is available for reporting.

`Page Count`
Total number of pages that are counted in the hour

- Click the link to search for all sessions that are completed within the hour. See "Searching Session Data" in the *IBM Tealeaf cxImpact User Manual*.

CUI Hit Count

Identifies the total number of hits that are recorded by the client user interface that occurred over each hour of the selected date.

Note: This report requires the installation and implementation of UI Capture. See the *IBM Tealeaf UI Capture for j2 Guide*.

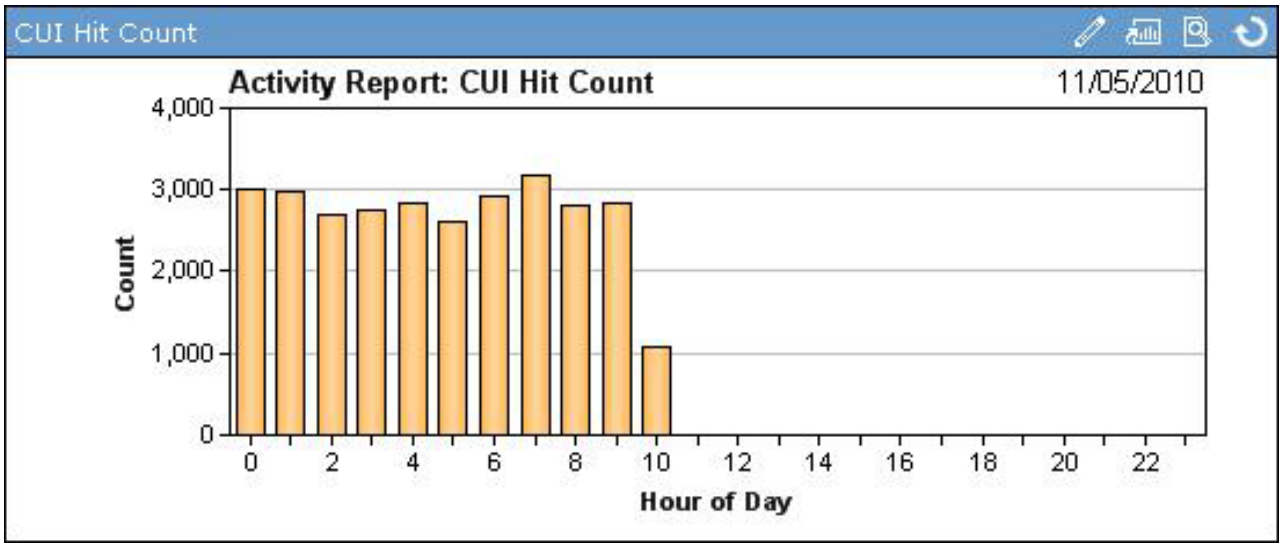


Figure 6. CUI Hit Count report

Report configuration:

Type **Configuration**

Events/Ratios
Event: `CUI Hit Count`

X-axis none

Y-axis none

Segment
none

Period Current date

Detail table:

Field **Description**

`Hour of Day`
Report data is organized into hourly buckets.

- When the reporting period is the current date, only the data for the hours that are captured and processed is available for reporting.

`CUI Hit Count`
Total number of client user interface hits counted in the hour

- Click the link to search for all sessions that contain CUI hits within the hour. See "Searching Session Data" in the *IBM Tealeaf cxImpact User Manual*.

Page Generation

Provides a chart of the average and maximum page generation times in milliseconds for the selected date.

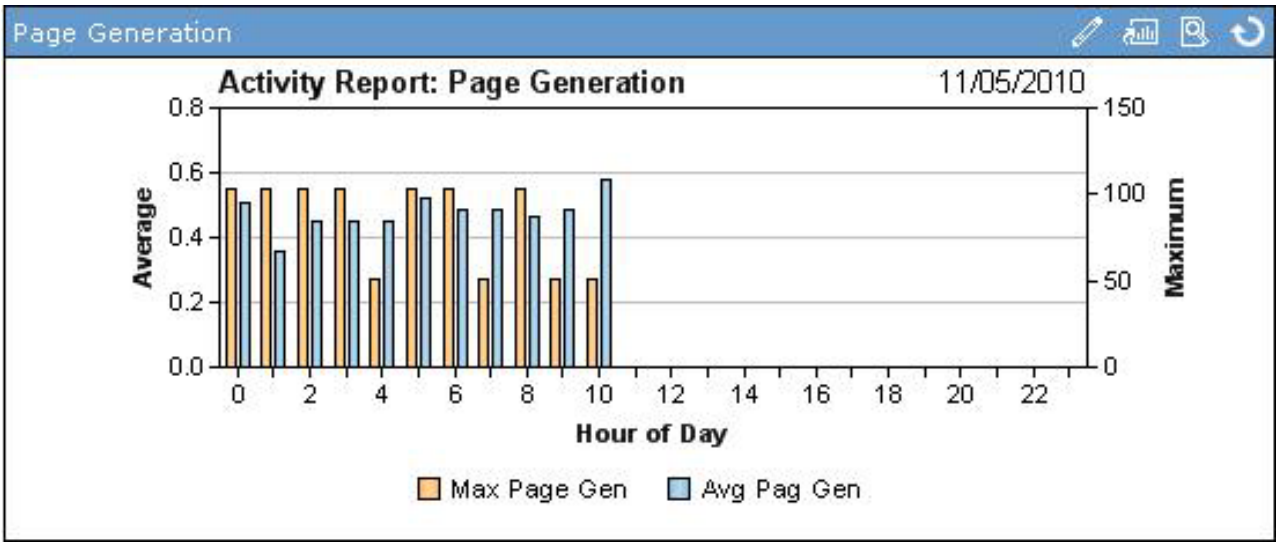


Figure 7. Page Generation report

Report configuration:

Type **Configuration**

Events/Ratios
Ratio: `Avg Pag Gen` event: `Max Page Gen`

X-axis none

Y-axis none

Segment
none

Period Current date

Detail table:

Field **Description**

`Hour of Day`
Report data is organized into hourly buckets.

- When the reporting period is the current date, only the data for the hours that is captured and processed is available for reporting.

`Max Page Gen`
Maximum page generation time in milliseconds during the hour

- Click the link to drill-down to all related sessions that occurred in the hour. See "Searching Session Data" in the *IBM Tealeaf cxImpact User Manual*.

`Avg Page Gen`
Average page generation time in milliseconds for all sessions in the hour

Page Size

Monitors the average size in Kb of pages that are captured during each hour of the selected date.

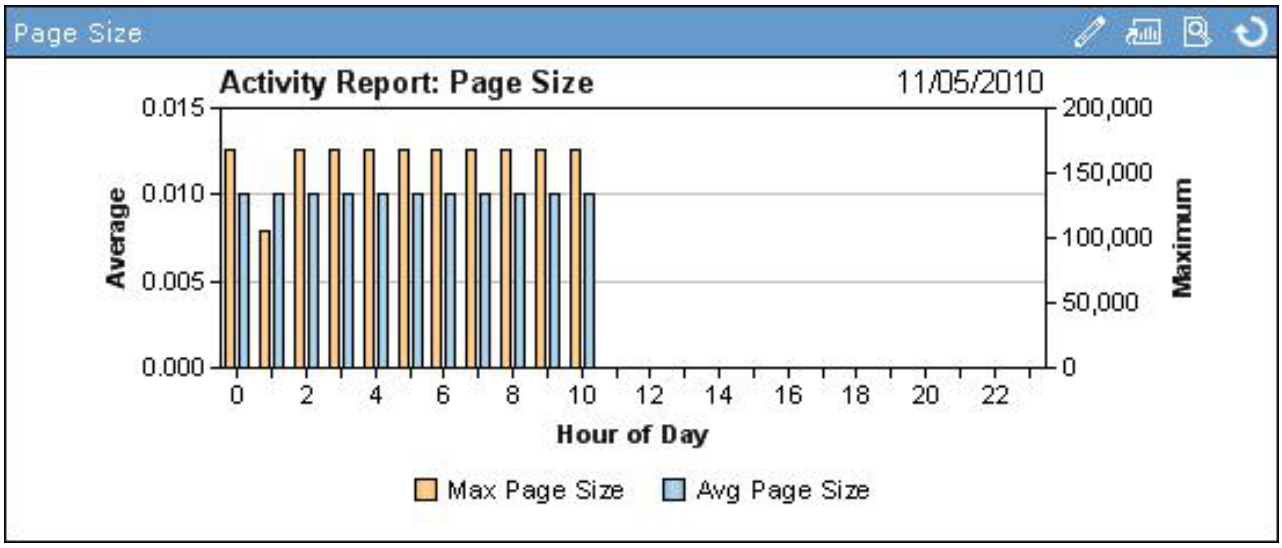


Figure 8. Page Size report

Report configuration:

Type **Configuration**

Events/Ratios
Ratio: `Avg Page Size` event: `Max Page Size`

X-axis none

Y-axis none

Segment
none

Period Current date

Detail table:

Field **Description**

`Hour of Day`
Report data is organized into hourly buckets.

- When the reporting period is the current date, only the data for the hours that is captured and processed is available for reporting.

`Max Page Size`
Maximum page size in Kb during the hour

- Click the link to drill-down to all related sessions that occurred in the hour. See "Searching Session Data" in the *IBM Tealeaf cxImpact User Manual*.

`Avg Page Size`
Average page size in Kb for all sessions in the hour

Session Duration

Provides a chart of the average session duration times for the selected date.

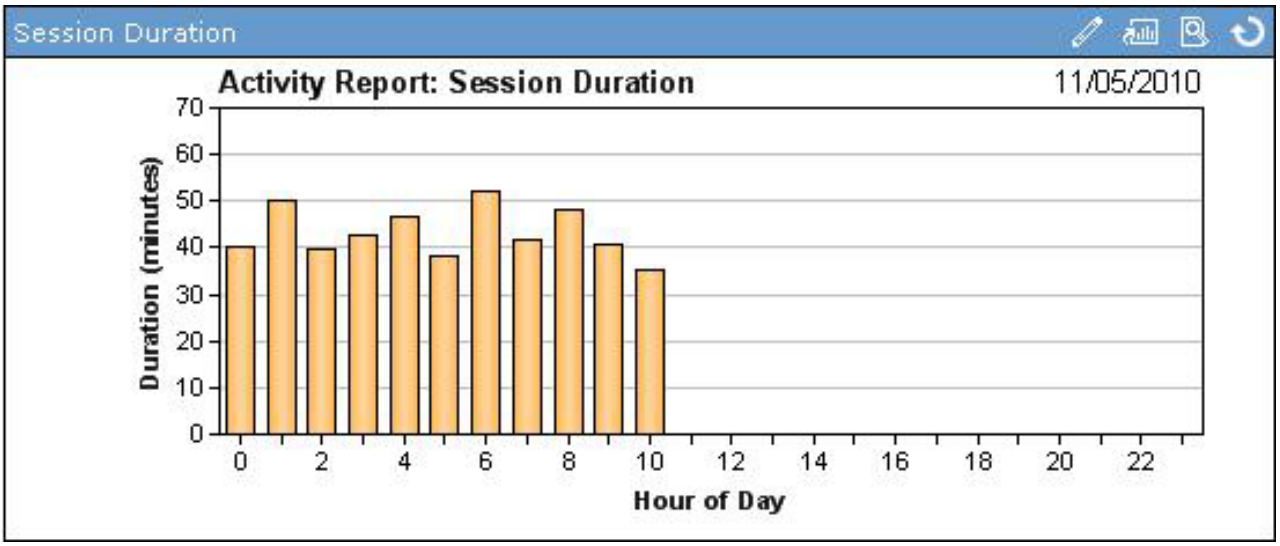


Figure 9. Session Duration report

Report configuration:

Type **Configuration**

Events/Ratios
Ratio: `Session Duration`

X-axis none

Y-axis none

Segment
none

Period Current date

Detail table:

Field **Description**

`Hour of Day`
Report data is organized into hourly buckets.

- When the reporting period is the current date, only the data for the hours that is captured and processed is available for reporting.

`Session Duration`
Ratio of sum of session duration in minutes for all sessions in the hour to the session count for the hour.

Session Hits Avg/Max

Displays the average and maximum number of hits per session for each hour of the selected date.

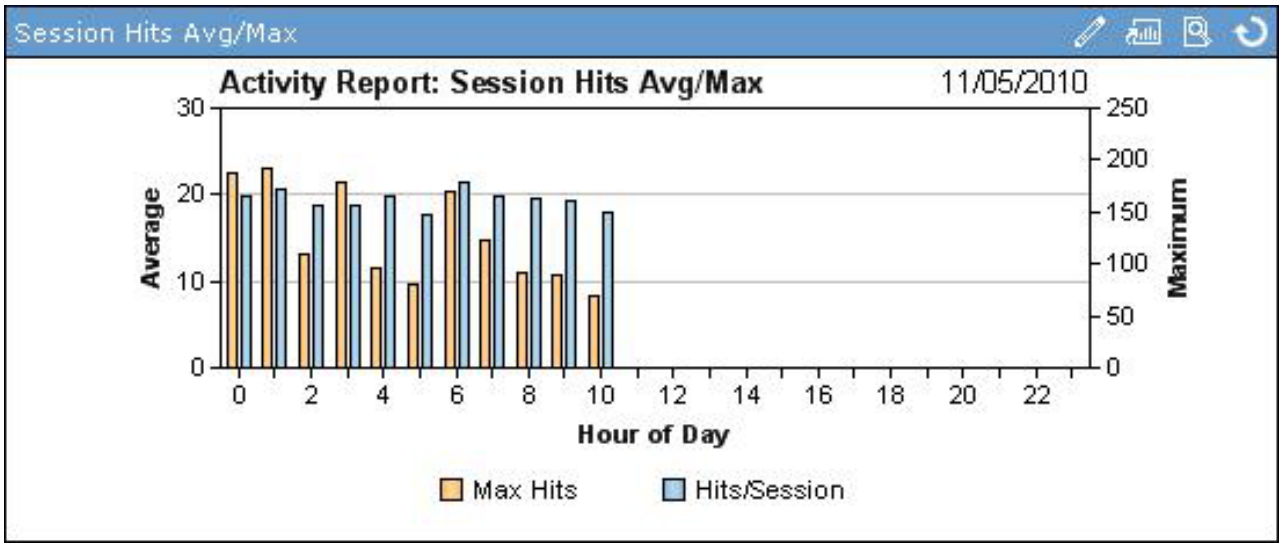


Figure 10. Session Hits Avg/Max report

Report configuration:

Type **Configuration**

Events/Ratios
Ratio: `Hits/Session = Hit Count / Session Count` event: `Max Hits`

X-axis none

Y-axis none

Segment
none

Period Current date

Detail table:

Field **Description**

`Hour of Day`
Report data is organized into hourly buckets.

- When the reporting period is the current date, only the data for the hours that is captured and processed is available for reporting.

`Max Hit`
Maximum number of hits in a session during the hour

- Click the link to drill-down to all related sessions that occurred in the hour. See "Searching Session Data" in the *IBM Tealeaf cxImpact User Manual*.

`Hits/Session`
Ratio of count of hits to count of sessions

Session Size Avg/Max

Displays the average and maximum size of sessions in megabytes occurring for each hour of the selected date.

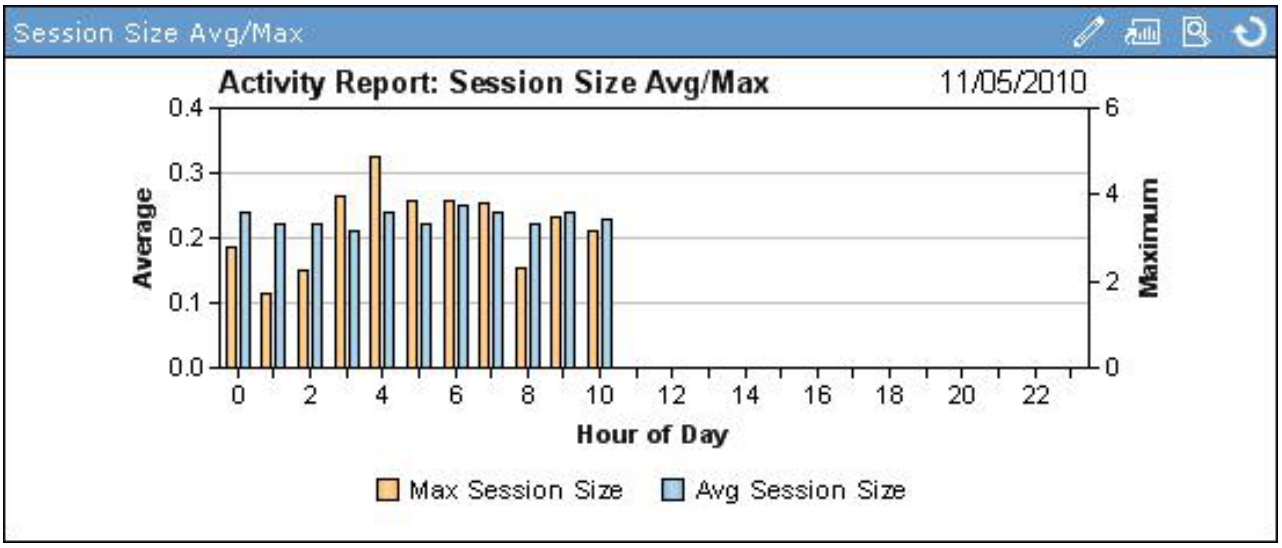


Figure 11. Session Size Avg/Max report

Report configuration:

Type **Configuration**

Events/Ratios
Ratio: `Avg Session Size = Session Size (MB) / Session Count` event: `Max Session Size`

X-axis none

Y-axis none

Segment
none

Period Current date

Detail table:

Field **Description**

`Hour of Day`
Report data is organized into hourly buckets.

- When the reporting period is the current date, only the data for the hours that is captured and processed is available for reporting.

`Max Session Size`
Maximum session size for the hour

- Click the link to drill-down to all related sessions that occurred in the hour. See "Searching Session Data" in the *IBM Tealeaf cxImpact User Manual*.

`Avg Session Size`
Ratio of session size in megabytes to count of sessions

Traffic (MB)

Displays session traffic in megabytes for the selected date. The report includes the metrics for request, response, and total traffic for each hour of the selected date.

Note: In most Tealeaf deployments, static content, such as style sheets, JavaScript, and images, is dropped by the Passive Capture Application. This report does not factor content that is dropped from the session by the PCA or the Windows pipeline. For more information about PCA capture mode, see "PCA Web Console - Pipeline Tab" in the *IBM Tealeaf Passive Capture Application Manual*.

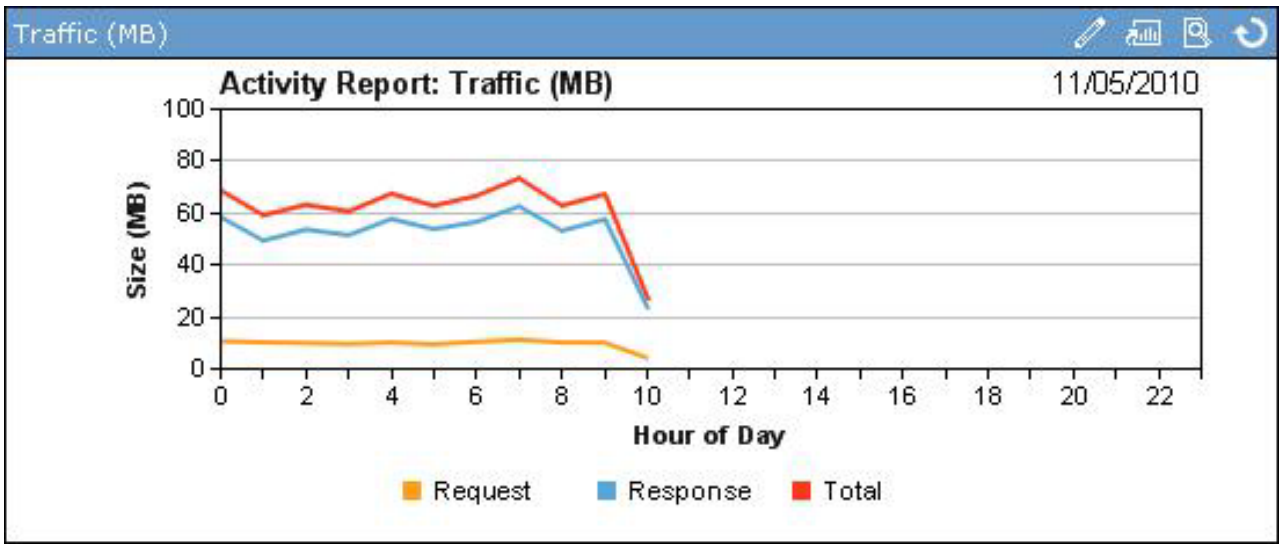


Figure 12. Traffic (MB) report

Report configuration:

Type **Configuration**

Events/Ratios
Event: `Request` event: `Response` event: `Total`

X-axis none

Y-axis none

Segment
none

Period Current date

Detail table:

Field **Description**

`Hour of Day`
Report data is organized into hourly buckets.

- When the reporting period is the current date, only the data for the hours that is captured and processed is available for reporting.

`Request`
Sum of request sizes in megabytes for the hour

- Click the link to drill-down to all related sessions that occurred in the hour. See "Searching Session Data" in the *IBM Tealeaf cxImpact User Manual*.

`Response`
Sum of response sizes in megabytes for the hour

- Click the link to drill-down to all related sessions that occurred in the hour. See "Searching Session Data" in the *IBM Tealeaf cxImpact User Manual*.

Total Sum of total request and response sizes in megabytes for the hour

- Click the link to drill-down to all related sessions that occurred in the hour. See "Searching Session Data" in the *IBM Tealeaf cxImpact User Manual*.

Round Trip

Displays average and maximum round trip times in milliseconds for each hour of the selected date.

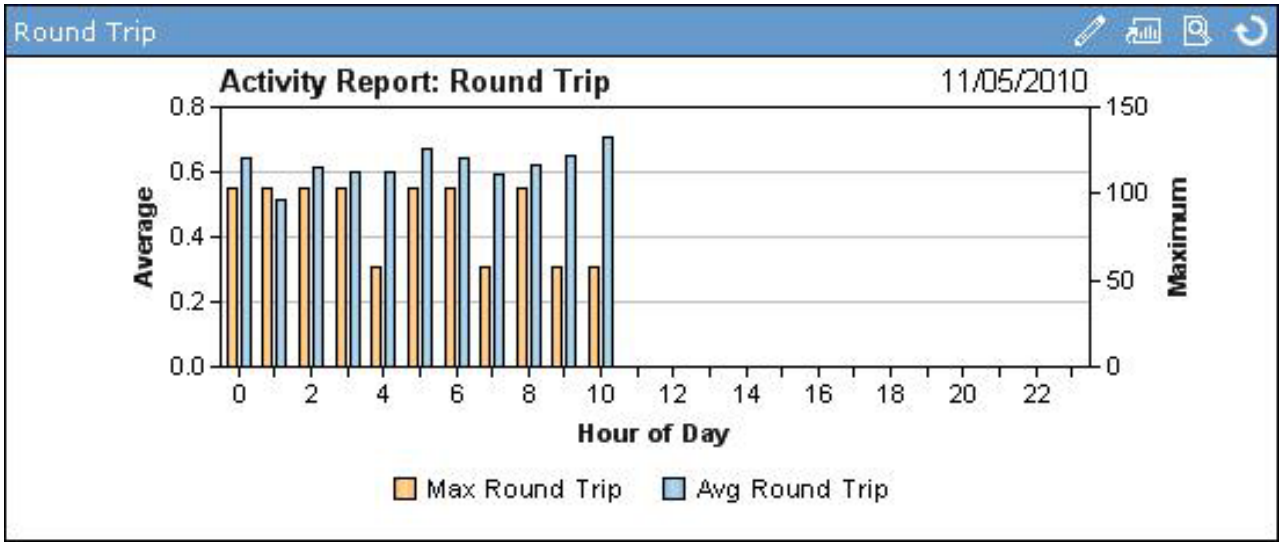


Figure 13. Round Trip report

Report configuration:

Type **Configuration**

Events/Ratios
Ratio: `Avg Round Trip = Page Round Trip total for session / Hit Count`
event: `Max Round Trip`

X-axis none

Y-axis none

Segment
none

Period Current date

Detail table:

Field **Description**

`Hour of Day`
Report data is organized into hourly buckets.

- When the reporting period is the current date, only the data for the hours that is captured and processed is available for reporting.

Max Round Trip
Maximum round trip time in milliseconds during the hour

- Click the link to drill-down to all related sessions that occurred in the hour. See "Searching Session Data" in the *IBM Tealeaf cxImpact User Manual*.

Avg Round Trip
Ratio of round trip time in milliseconds to count of hits during the hour

Network Trip

Displays average and maximum network times in milliseconds for each hour of the selected date.

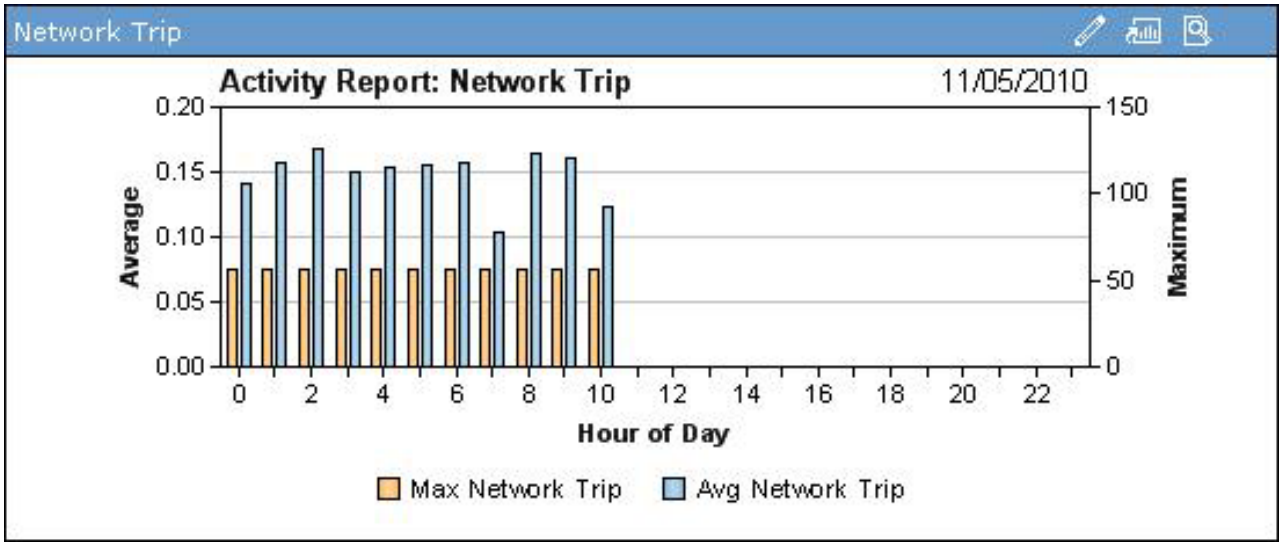


Figure 14. Network Trip report

Report configuration:

Type **Configuration**

Events/Ratios
Ratio: `Avg Network Trip = Network Trip total for session / Hit Count`
event: `Max Network Trip`

X-axis none

Y-axis none

Segment
none

Period Current date

Detail table:

Field **Description**

Hour of Day
Report data is organized into hourly buckets.

- When the reporting period is the current date, only the data for the hours that is captured and processed is available for reporting.

Max Network Trip
Maximum network trip time in milliseconds during the hour

- Click the link to drill-down to all related sessions that occurred in the hour. See "Searching Session Data" in the *IBM Tealeaf cxImpact User Manual*.

Avg Network Trip
Ratio of network trip time in milliseconds to count of hits for the hour

One Hit Session Count

Displays the count of one-hit sessions for each hour of the selected date.

- One-hit sessions can be an indicator of bots and other automated activities. Generally, these sessions are considered un-interesting.

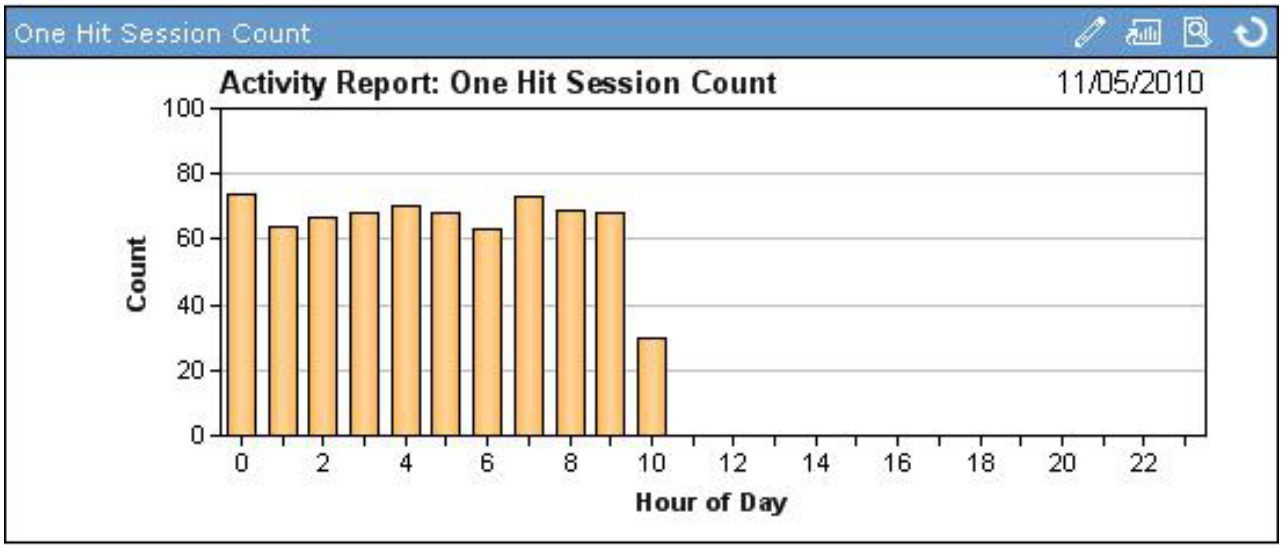


Figure 15. One Hit Session Count report

Report configuration:

Type **Configuration**

Events/Ratios
Event: `1 Hit Session Count`

X-axis none

Y-axis none

Segment
none

Period Current date

Detail table:

Field **Description**

Hour of Day
Report data is organized into hourly buckets.

- When the reporting period is the current date, only the data for the hours is captured and processed is available for reporting.

1 Hit Session Count
Count of one-hit sessions that are recorded for the hour

- Click the link to drill-down to all related sessions that occurred in the hour. See "Searching Session Data" in the *IBM Tealeaf cxImpact User Manual*.

One Hit Session Ratio

Displays the ratio of one-hit sessions to the total count of sessions for each hour of the selected date.

- One-hit sessions can be an indicator of bots and other automated activities. Generally, these sessions are considered uninteresting.

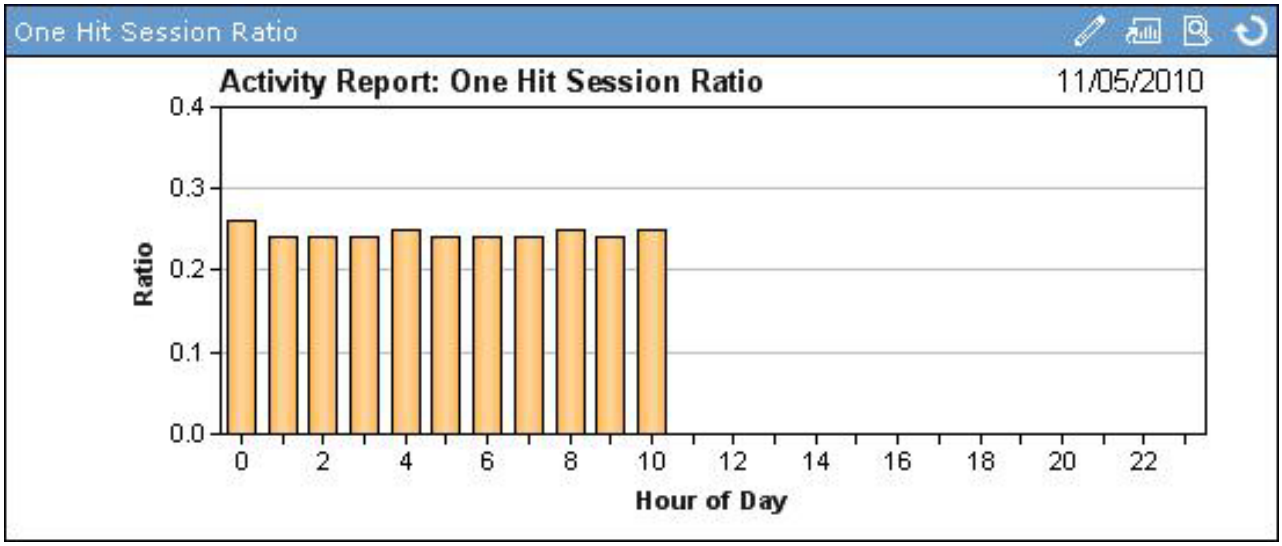


Figure 16. One Hit Session Ratio report

Report configuration:

Type **Configuration**

Events/Ratios
Ratio: `1 Hit Sessions / Total Sessions = 1 Hit Session Count / Session Count`

X-axis none

Y-axis none

Segment
none

Period Current date

Detail table:

Field **Description**

Hour of Day
Report data is organized into hourly buckets.

- When the reporting period is the current date, only the data for the hours that is captured and processed is available for reporting.

1 Hit Sessions/Total Sessions
Ratio of one-hit sessions to total count of sessions for the hour

- Click the link to drill-down to all related sessions that occurred in the hour. See "Searching Session Data" in the *IBM Tealeaf cxImpact User Manual*.

Req Cancel Count

Displays the count of client-canceled and server-canceled pages for each hour of the selected date.

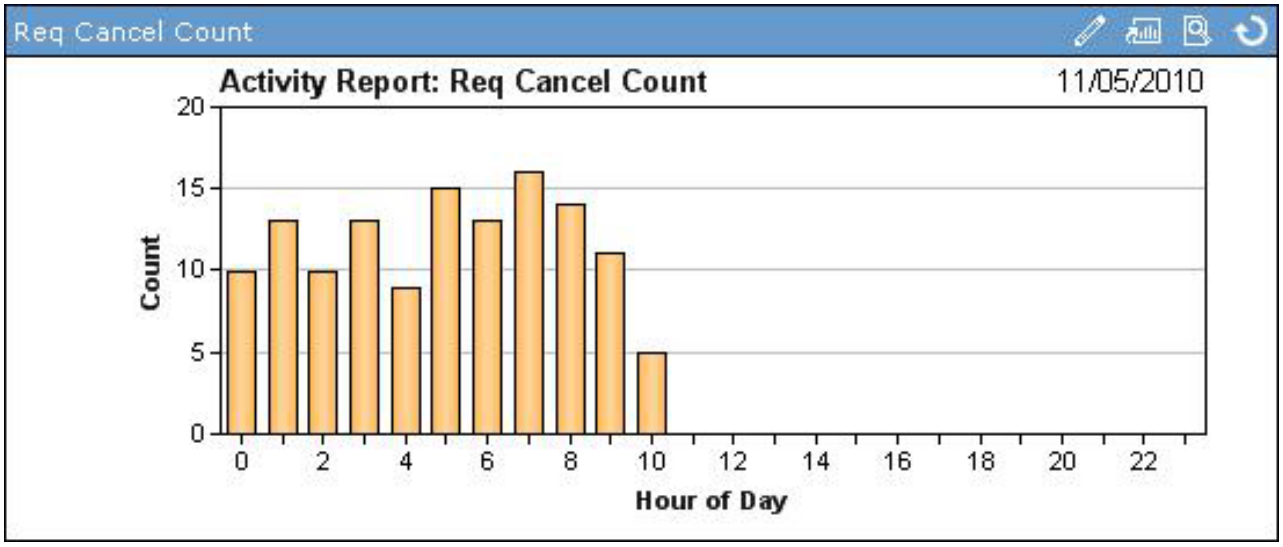


Figure 17. Req Cancel Count report

Report configuration:

Type **Configuration**

Events/Ratios
Event: `Req Cancel Count`

X-axis none

Y-axis none

Segment
none

Period Current date

Detail table:

Field **Description**

`Hour of Day`
Report data is organized into hourly buckets.

- When the reporting period is the current date, only the data for the hours that is captured and processed is available for reporting.

`Req Cancel Count`
Total number of Request Canceled events that are counted in the hour

- Click the link to search for all sessions that are completed within the hour. See "Searching Session Data" in the *IBM Tealeaf cxImpact User Manual*.

Total Fact Count

Total number of facts that are recorded in all sessions for each hour of the selected date.

- A *fact* is the recording of one instance of an event that riggers with a report group. If an event is associated with two report groups, two facts are recorded whenever the event is triggered. See "Getting Started with Tealeaf Events" in the *IBM Tealeaf Event Manager Manual*.
- Fact data is stored in the request of the hit in which it was occurred. See "RealiTea Viewer - Request View" in the *IBM Tealeaf RealiTea Viewer User Manual*.

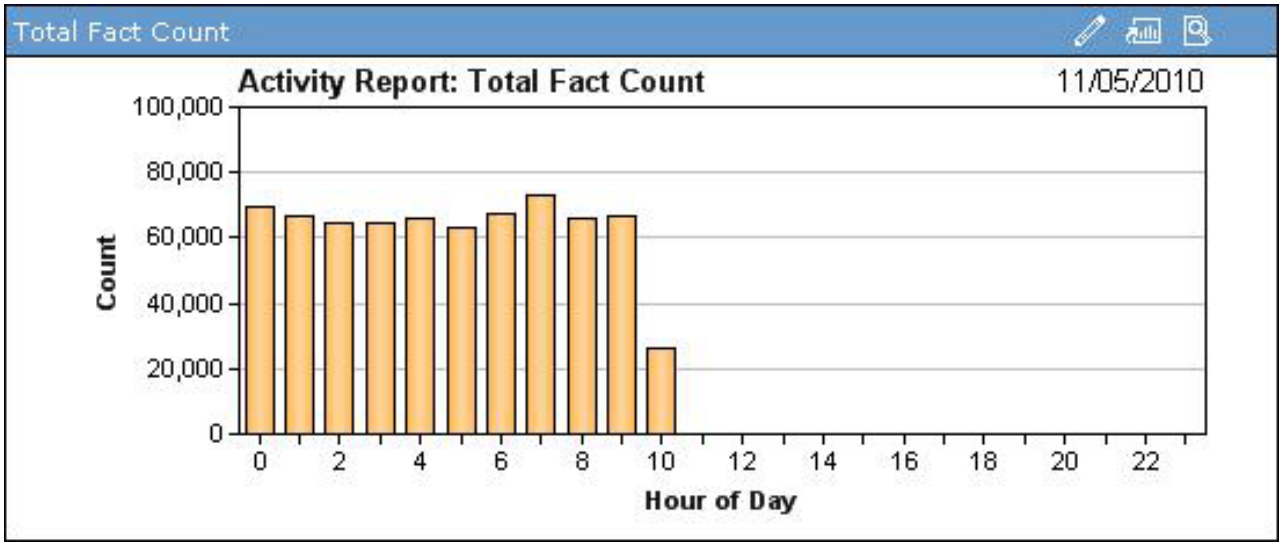


Figure 18. Total Fact Count report

Report configuration:

Type **Configuration**

Events/Ratios
Event: `Total Fact Count`

X-axis none

Y-axis none

Segment
none

Period Current date

Detail table:

Field **Description**

`Hour of Day`
Report data is organized into hourly buckets.

- When the reporting period is the current date, only the data for the hours that is captured and processed is available for reporting.

Total Fact Count
Total number of facts that are counted in the hour

- Click the link to search for all sessions that are completed within the hour. See "Searching Session Data" in the *IBM Tealeaf cxImpact User Manual*.

Facts/Hit

Average number of facts that are recorded in each hit for each hour of the selected date.

- A *fact* is the recording of one instance of an event that triggers with a report group. If an event is associated with two report groups, two facts are recorded whenever the event is triggered. See "Getting Started with Tealeaf Events" in the *IBM Tealeaf Event Manager Manual*.
- Fact data is stored in the request of the hit in which it was occurred. See "RealiTea Viewer - Request View" in the *IBM Tealeaf RealiTea Viewer User Manual*.

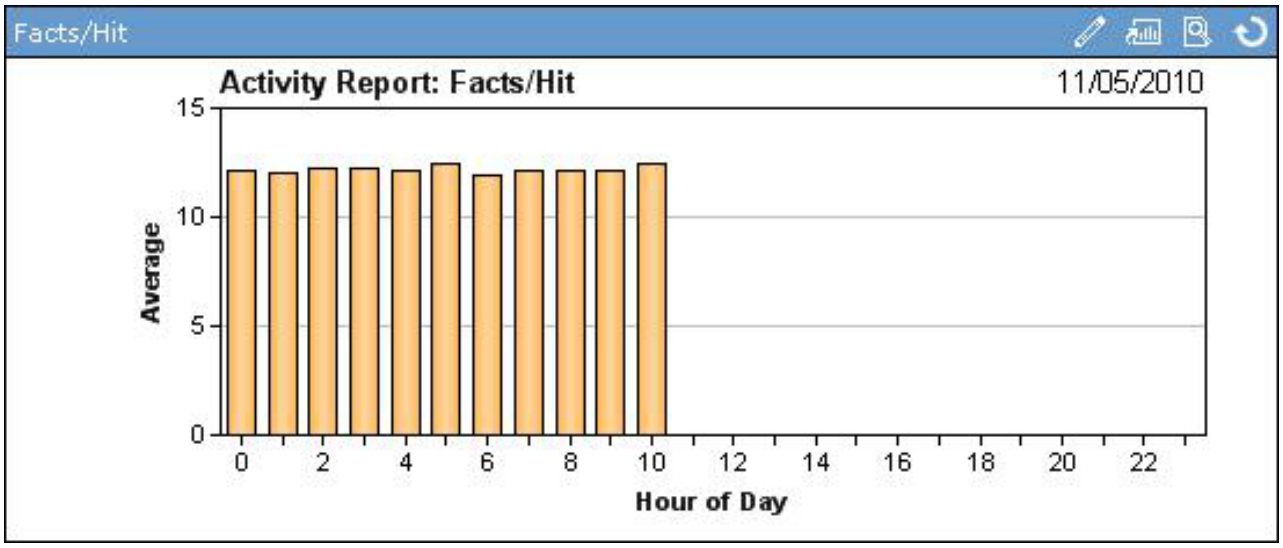


Figure 19. Facts/Hits report

Report configuration:

Type **Configuration**

Events/Ratios
Ratio: `Facts/Hit = Total Fact Count for session / Hit Count`

X-axis none

Y-axis none

Segment
none

Period Current date

Detail table:

Field **Description**

Hour of Day
Report data is organized into hourly buckets.

- When the reporting period is the current date, only the data for the hours that is captured and processed is available for reporting.

Facts/Hit
Ratio of total facts to total hits for the hour

- Click the link to search for all sessions that are completed within the hour. See "Searching Session Data" in the *IBM Tealeaf cxImpact User Manual*.

Facts/Session

Average number of facts that are recorded in each session for each hour of the selected date.

- A *fact* is the recording of one instance of an event that triggers with a report group. If an event is associated with two report groups, two facts are recorded whenever the event is triggered. See "Getting Started with Tealeaf Events" in the *IBM Tealeaf Event Manager Manual*.
- Fact data is stored in the request of the hit in which it was occurred. See "RealiTea Viewer - Request View" in the *IBM Tealeaf RealiTea Viewer User Manual*.

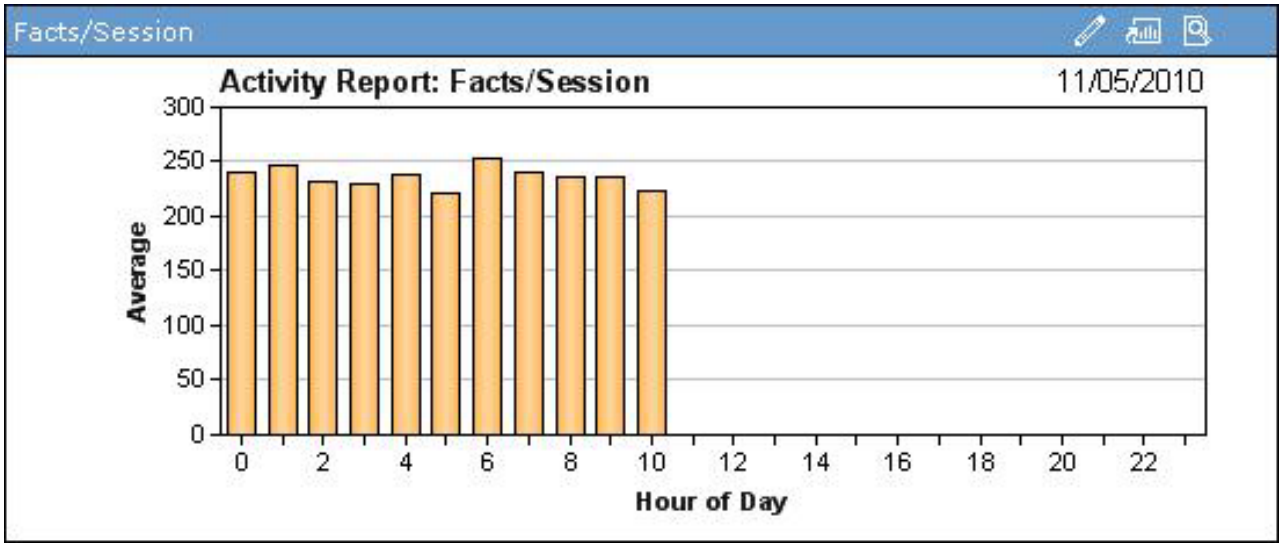


Figure 20. Facts/Session report

Report configuration:

Type **Configuration**

Events/Ratios
Ratio: `Facts/Session = Total Fact Count for session / Session Count`

X-axis none

Y-axis none

Segment
none

Period Current date

Detail table:

Field **Description**

Hour of Day

Report data is organized into hourly buckets.

- When the reporting period is the current date, only the data for the hours that have been captured and processed is available for reporting.

Facts/Session

Ratio of total facts to total sessions for the hour

- Click the link to search for all sessions that are completed within the hour. See "Searching Session Data" in the *IBM Tealeaf cxImpact User Manual*.

Event Activity

Through the Portal, you can review event counts in the Short-Term Canister (STC) and Long-Term Canister (LTC) through a provided report. You can monitor counts and, through drill-down, generate reports on specific events for the selected focus period in the Event Activity report.

- The Event Activity report includes events in both active (STC) and completed (LTC) sessions. For event counts in active sessions, see "Monitoring Active Events" in the *IBM Tealeaf cxImpact User Manual*.
- This report displays all events in the system, whether they are or were active during the selected reporting period.
- Inactive events and events that were not triggered during the focus period both are displayed as having a count of `0`.
- You cannot drill down on active events that are not configured to be searchable. For more information about drill-downs, see “Notes on Searches Executed via Event Report Drill-Downs” on page 44.

Event Activity Report

The Event Activity report displays all events that are detected in session data over the focus period, along with the number of occurrences of the event.

To configure the Event Activity report:

1. In the Tealeaf Portal, select **Analyze** > **Event Activity**.

Figure 21. Event Activity options

2. All events that are detected for the currently configured reporting period are displayed.
   - To filter the list, enter a string in the Filter text box. The list of available events is updated based on the entered string.
3. To group the events according to their event labels, click the **View by Labels** check box.
4. By default, events that were not detected during the reporting period are not displayed. To display all events, including the ones with zero counts, select the **Include Zeros** check box.
   - To refresh the display, click the **Refresh** ( ) icon.
   - To export the displayed report, click the **Export** ( ) icon. See "Exporting from Event Activity Report."
5. To change the reporting period, click the date icon in the toolbar.
   - To select a reporting period from the current date back a specified number of days, make a selection from the Quick Select® drop-down.
   - To configure a custom reporting period, click the start date. Then, press `SHIFT` and click the end date. The start date, end date, and all dates in between are selected.
   - To apply the changed reporting period to the report, click **Apply**.
6. Your report is displayed.

Exporting from Event Activity Report

To export the report data in XML format, click the**Export** Export button in the toolbar. Then, select one of the following options:

1. Excel - Export contents of report in to an XML report and display it in Microsoft Excel. You can review counts for each event label in the Labels worksheet and counts for individual events in the Events worksheet.
2. PDF - Generate report as a PDF.
3. Email - Generate the report in either format and send it by email:
   a. Select the report format: PDF or Excel.
   b. Enter an optional message.
   c. Enter recipient email addresses or aliases, separated by commas.
   d. To send the report, click **Send**. The report is exported in the selected format and emailed to the specified list of addresses.

Notes on Searches Executed via Event Report Drill-Downs

When an event fires, it is recorded in the report database with the dimensional values at the time the event fired. When you drill into a hit-based report, a search is run to return relevant results, which can return session counts that do not match expectations that are based on the report data for the following reasons.

Note: The following explanation applies to hit-based reports by using dimension value filters and how to match up report results with search results. Session-based report data must match search results.

For some reports, depending on the type of drill-down that is run, the And on Same Page search capability can be used to return correct matches. In some cases, however, it is not possible for the Portal application to use this search method, and the reported counts do differ.

Text searching is session-based. When a search is run, any session that contains the dimensional value and the event is returned, even if the dimensional value on the hit where the event fired is different from the value in the search. For this reason, a higher number of sessions can be displayed when drilling into the initial session list.

For example, suppose that you have two 4-page sessions:

1. Session 1 has page 1 with dimension value `App1`. On page 4, the value is `App2` when `Event 1` fires.
2. Session 2 has page 1 with dimension value `App2`. On page 4, the dimension value is `App1` when `Event 1` fires.

Suppose that you are viewing a report that identifies the occurrence of `App2` on the first page of the session. When you click the drill-down link, the Portal essentially specifies the following search:

```
Event=Event 1 and Application=App2
```

Since search is session-based, the logical `and` is applied to the entire session, not to the individual hit. When this search is run, both of Session 1 and Session 2 are returned, as `Event 1` and `App2` can be displayed somewhere in the session.

The report data displays a count of 1 for `Event 1` with dimension value `App2`. However, when you drill down, two sessions are returned, because both sessions have dimension value `App2` and `Event 1`.

In the preceding example, you can generate search results that are consistent with the report data by specifying the search terms and the following conditions:

- Apply a logical `AND`
- Specify the data/time range appropriately
- Apply `And on same page` in the search specification, if filtering a dimension value other than Path. By default, `And on same page` is applied to searches by using the Path filter.

Counts in Event Activity Report

The event counts in the Event Activity report reflects counts in both the Short-Term Canister and Long-Term Canister.

However, when you drill down on any of these counts, the search is run through search indexes, which are created for Completed sessions that are only stored in the LTC.

For this reason, event counts can differ between the Event Activity report and the drill-down searches within that report.

Other Event Reports

You can review reports that are related to top movers in dimension values. See "Analyzing Top Movers."

Analyzing Top Movers

Through the Portal, you can generate reports on the top movers that are configured through the Tealeaf Event Manager.

- To create and review top mover reports, select **Analyze** > **Top Movers** in the Portal menu.

In Tealeaf, a*top mover* is a stored calculation of deviations in the values of events, dimensions, or ratios. Using the recorded values and counts of the event or dimension, deviations are calculated based on the configured rolling window.

- The *rolling window* is defined by a parameter. See "Rolling window" on page 67.

The standard deviations for today are reported based on historical data. The dataset that is used for calculating top movers is based on days of data that are retained and currently available and the mode that is used for calculating them.

Note: Since daily deviations are calculated over a period of multiple weeks, you must create the daily movers and allow them to acquire at least two weeks worth of data before you generate Top Mover reports. Otherwise, the data may not be meaningful.

- See "Deviation Calculations" on page 65.

Top mover report data can be calculated for:

1. Events
2. Events with dimension values

   Note: For Top Movers for dimensions, only the values that are displayed in a dimension's whitelist and are marked for Top Mover tracking can be displayed in a Top Movers report. For dimension Top Movers, you must create a whitelist of values and mark a set of values first. See "Whitelists and Blacklists" in the *IBM Tealeaf Event Manager Manual*.

3. Ratios of Event Counts

   Note: The creation and reporting on Hourly, dimension, and ratio movers is an enhancement that is associated with cxView, a separately licensable component of the Tealeaf CX system. See "Enhancements to Top Movers for cxView" in the *IBM Tealeaf cxView User Manual*.

These values then are aggregated for storage on an hourly or daily basis. Storage of hourly movers requires more space.

- For more information about creating movers, see "TEM Top Movers Tab" in the *IBM Tealeaf Event Manager Manual*.

The calculated movers can then be displayed in the Top Movers page to graphically show variations in values or counts.

You can also apply dimensions to the Top Mover report to filter the display to show only the Top Mover information within a narrowed context.

- See “Adding Dimensions” on page 52.

By default, Top Movers are not calculated and stored for events and dimensions.

- If you want, you can enable auto-creation of top movers for all currently active events and dimensions. See "Data Management for Top Movers" in the *IBM Tealeaf Event Manager Manual*.
- If auto-creation is not enabled, you must manually create top movers for each event and dimension you want to track. See "TEM Top Movers Tab" in the *IBM Tealeaf Event Manager Manual*.

Overview

In the Top Movers page, you can add movers to the report, which is immediately refreshed to display the movers for the selected focus date.

- A report can be configured to display movers for over a range of dates. Report data includes movers that are calculated for the preceding rolling window. See “Changing the Focus Period” on page 58.
  - For more information about how the rolling window is defined, see “Rolling window” on page 67.
- In each report, you can display Hourly or Daily movers, but not both. See “Hourly versus Daily movers” on page 51.
- All top movers that are not based on dimensions are generated from the `No Dimension Report Group` for the event.

  Note: Depending on the volume of data, the tracking of top movers can require significant data storage. To constrain the storage requirements for top movers, Tealeaf requires that you manually choose to track each mover.

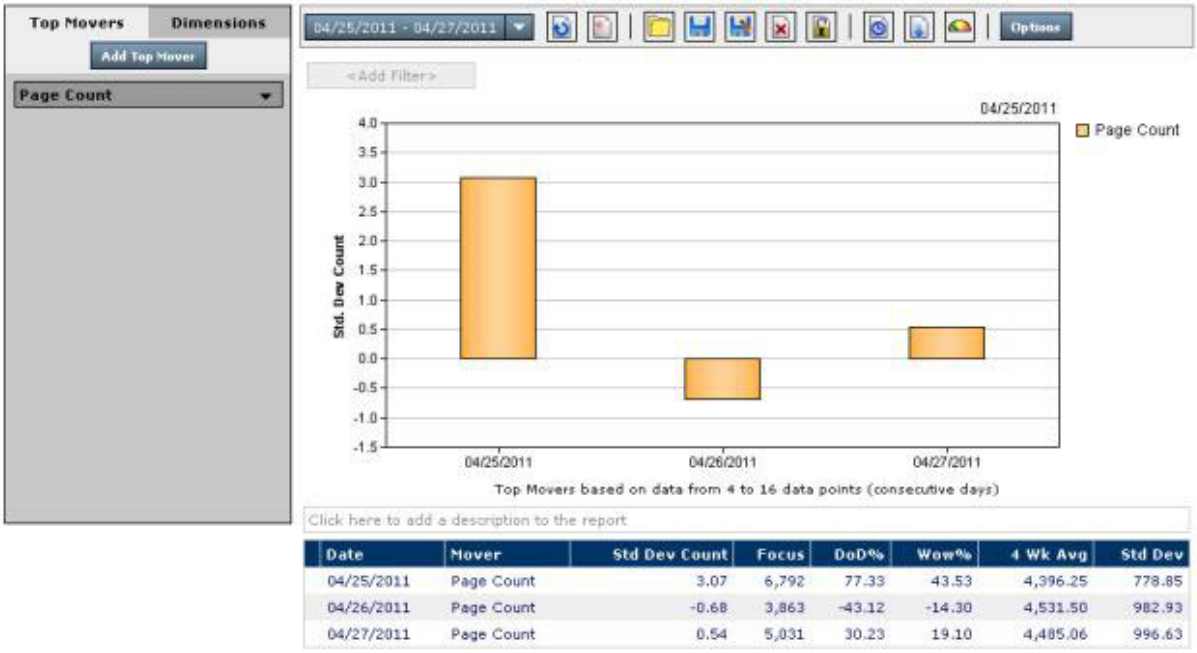

Top Movers
Dimensions
Add Top Mover
Page Count
04/25/2011 - 04/27/2011
Options
<Add Filter>
04/25/2011
Page Count
Std. Dev Count
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
-1.5
04/25/2011
04/26/2011
04/27/2011
Top Movers based on data from 4 to 16 data points (consecutive days)
Click here to add a description to the report
Date | Mover | Std Dev Count | Focus | DoD% | Wow% | 4 Wk Avg | Std Dev
04/25/2011 | Page Count | 3.07 | 6,792 | 77.33 | 43.53 | 4,396.25 | 778.85
04/26/2011 | Page Count | -0.68 | 3,863 | -43.12 | -14.30 | 4,531.50 | 982.93
04/27/2011 | Page Count | 0.54 | 5,031 | 30.23 | 19.10 | 4,485.06 | 996.63

Figure 22. Top Movers screen

- To add a mover to the report, click **Add Top Mover**. See "Adding Top Movers" on page 49.
- In the Dimensions tab, you can also add dimensions to a report to filter Top Mover data by specific contextual values. See "Adding Dimensions" on page 52.
- Additional information about a Top Mover is available in the tooltip.
- When a mover is added to the report, the window is automatically updated. See "Report Window" on page 54.
- Report commands are available in the toolbar above the report window. See "Toolbar" on page 48.
- You can change the focus date range for the report. See "Changing the Focus Period" on page 58.

Workflow

The following procedure is a generalized workflow for creating Top Mover reports.

Before You Begin, you must review and decide the calculation mode to use for calculating top movers. See "Top Movers Calculation Mode" on page 65.

1. To start a new report, click the**Create New** icon in the toolbar. See "Toolbar" on page 48.
2. To add a mover, click **Add Top Mover** in the left panel. Select the type of mover to add (Hourly or Daily).

   Note: The creation and reporting on Hourly movers is an enhancement that is associated with cxView, a separately licensable component of the Tealeaf CX system. See "Enhancements to Top Movers for cxView" in the *IBM Tealeaf cxView User Manual*.

   - The chart and detail table can display the data for an unlimited number of movers. However, the chart can become illegible.

3. To apply a dimensional filter to the included mover, click and drag a dimension from the Dimensions tab to the Add Filter box in the chart. See "Adding Dimensions" on page 52.
4. To change the focus range, click the date icon in the toolbar. Based on your selection, the report is updated.
   - By default, daily Top Movers display data from the current day, and hourly Top Movers display data from the most recently completed hour of the current date.
   - You can change the date range that is displayed in the report. See "Changing the Focus Period" on page 58.
5. Optionally, you can filter the report to display only the Top N movers, which are based on absolute value of the measured standard deviation. See "Top N filtering" on page 51.
6. You can also apply a visual shading to the report based on threshold values you specify. See "Visual Threshold" on page 64.
7. As needed, you can sort the display in the details table by clicking the header of a column. See "Mover Detail Table" on page 56.
8. If you want, you can add a description for the report. See "Chart Description" on page 56.
9. To save the generated report, click the **Save** ( ) icon in the toolbar. Enter a name in the dialog and click **Save**.
10. Export the report data as needed. See "Export" on page 61.
11. From theTop Movers page, you can also add the report as a component to an existing dashboard. See "Adding Reports to Dashboards" on page 61.

Toolbar

Figure 23. Top Movers toolbar

The following commands are available through the toolbar.

Table 3. Toolbar.

Icon	Command	Description
	Focus Date	Change the focus date range for the report. See "Changing the Focus Period" on page 58.
	Refresh	Refresh the displayed report.
	Create New	Create a report.

Table 3. Toolbar (continued).

Icon	Command	Description
	Open	Open a saved report. **Note:** When you browse for a Top Mover report by label, all report labels are displayed, even if they do not contain Top Movers. If a Top Mover report is not explicitly assigned to a label, it is available in the Default label.
	Save	Save the current report.
	Save As	Save the current report under a new report title.
	Delete	Delete the current report. **Note:** To delete a report, you must be a Tealeaf administrator, an administrator for the report, or the owner of the report. See “Report Access Permissions” on page 59.
	Report Access Permissions	Change access permissions for the current report. See “Report Access Permissions” on page 59.
	Schedule Report	Configure a scheduled report snapshot for delivery to specified users via email. See “Report Schedules” on page 60.
	Export	Export report contents to Excel or PDF. See “Export” on page 61.
	Add Report to Dashboard	Add the report to an existing dashboard. See “Adding Reports to Dashboards” on page 61.
	Options	Change report options, such as applying Top N filtering to the report. See “Options” on page 63.

Adding Top Movers

You can add movers through the left panel. Click **Add Top Mover**. If the report is empty, you can select the type of mover to add (**Add Hourly Mover** or **Add Daily Mover**).

Note: The creation and reporting on Hourly movers is an enhancement that is associated with cxView, a separately licensable component of the Tealeaf CX system. See "Enhancements to Top Movers for cxView" in the *IBM Tealeaf cxView User Manual*.

Note: After you add either a daily or hourly mover to a report, you can display only movers of that type. To report on the other type of movers, you must configure a new report.

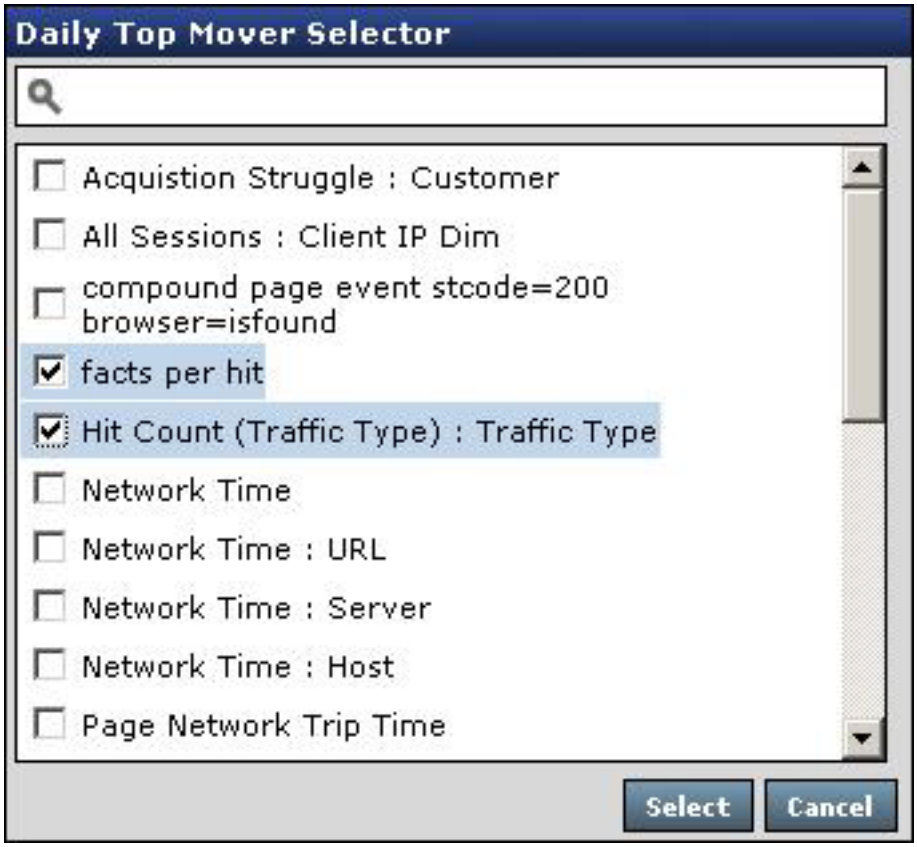


Figure 24. Daily Top Mover Selector

- The type of mover you are adding is listed in the title bar.
- Both inactive and active movers are displayed.
- If a dimension is already added, the list of available Top Movers is filtered to show only those movers that can be used with the included dimension. See "Adding Dimensions" on page 52.
- If the added mover contains a dimension, the dimension is listed after the colon. For example, the dimension in the mover `Network Time : URL` is the `URL` dimension.

  Note: The creation and reporting on dimension movers is an enhancement that is associated with cxView, a separately licensable component of the Tealeaf CX system. See "Enhancements to Top Movers for cxView" in the *IBM Tealeaf cxView User Manual*.
- To filter the display, enter a text string in the Filter textbox and press `RETURN`. The Top Mover Selector is refreshed to display only the movers whose name includes the string you entered.
- To select a mover, click the check box next to its name.
- To add the selected movers to the report, click **Select**.
- To cancel, click **Cancel**.

After you add movers, the report window is automatically refreshed. See “Report Window” on page 54.

For more information on Top Movers, see "Adding Top Movers" and "Top Movers Calculation Mode" in the *IBM Tealeaf cxImpact Reporting Guide.*

Top Mover context menu

After a Top Mover is added to the chart, the following menu items are available in the drop-down next to the Top Mover in the left panel:

Menu Item
Description

Rename Rename the Top Mover. This renaming applies to the report only; the source data name is not changed.

Remove Remove the Top Mover from the report.

Hourly versus Daily movers

In each report, you can display Hourly or Daily movers, but not both. When hourly movers are selected, only Hourly movers can be used in the report.

Note: The creation and reporting on Hourly movers is an enhancement that is associated with cxView, a separately licensable component of the Tealeaf CX system. See "Enhancements to Top Movers for cxView" in the *IBM Tealeaf cxView User Manual*.

- If you are using Hourly movers, you can configure the hour that is displayed in the report. See “Changing the Focus Period” on page 58.
- To switch between Daily and Hourly movers or vice versa, clear the report.

Movers can be created for event values, dimensional values, or ratios. See "TEM Top Movers Tab" in the *IBM Tealeaf Event Manager Manual*.

- For more information about differences in displayed content for each type of mover, see “Report Window” on page 54.

Top N filtering

Optionally, you can configure the report to display a selected number of the topmost movers, which are based on the absolute value of the calculated deviation. For example, suppose that your report displays the following movers:

- Mover A: `-1.44`
- Mover B: `0.32`
- Mover C: `0.85`

If you configure the report to display the top two movers, then the report displays Mover A and Mover C. Since the absolute value of Mover B is the least, it is dropped from the report.

Using this option, you can display the most active movers in a report.

1. In the toolbar, click the**Options** button.
   - You can also edit the title of the report in theOptions window. See “Options” on page 63.
2. In the Options window, click the `Display Top N Values by Std Dev Count` checkbox.
3. In the text box, enter a value for the number of most volatile top movers to display in the report.

4. Click **Apply**.
   - To cancel the changes, click **Cancel**.
5. The report is updated to display only the Top N movers that you configured.

Adding Dimensions

You can apply dimension filtering to your Top Movers report.

- The list of available dimensions is filtered by default to display only the dimensions that apply to the Top Mover or Movers currently in the report.
- To display all active dimensions, click the **Show All Dimensions** check box.
- To add a dimension, drag it from the left navigation bar to the <Add Filter> box in the chart. The dimension is added to the report.
  - You can also click the <Add Filter> box to open the Dimension selector.

Dimension drop-down menu

When a dimension is added, the following commands are available in the drop-down menu:

Command
: **Description**

Filter
: Filter the report to display data only for specified dimension values. See "Dimensional filtering."

Rename
: Rename the dimension for purposes of the report. Enter a new name and click **Apply**.

Remove
: Remove the dimension from the report.

Dimensional filtering

You can reduce what data is included in the chart by editing the dimension filtering to include or exclude specific dimensions and to limit the display of filtered dimensions to a specified top-N number of values.

For example, suppose that you are interested in Top Mover values for specific URLs on your web application. Depending on the site, the list of URLs can be too long to be useful. Using dimensional filtering, you can limit the report to display only the top 25 values. For various reasons, you may have already decided to filter the list of values in the URL (Normalized) dimension to a whitelist of accepted and useful URLs. In the Tealeaf Report Builder, you can filter the report to display only the top 25 values from the whitelist.

- In the definition of the dimension, some filtration and remapping of dimension values may already be specified in a whitelist or a blacklist. When data is detected, these modifications are made before the data is available for reporting. See "TEM Dimensions Tab" in the *IBM Tealeaf Event Manager Manual*.

1. To filter the report that is based on a dimension that you include, click the drop-down menu next to the included dimension and select **Filter**.
2. The Dimension Filter dialog is displayed:

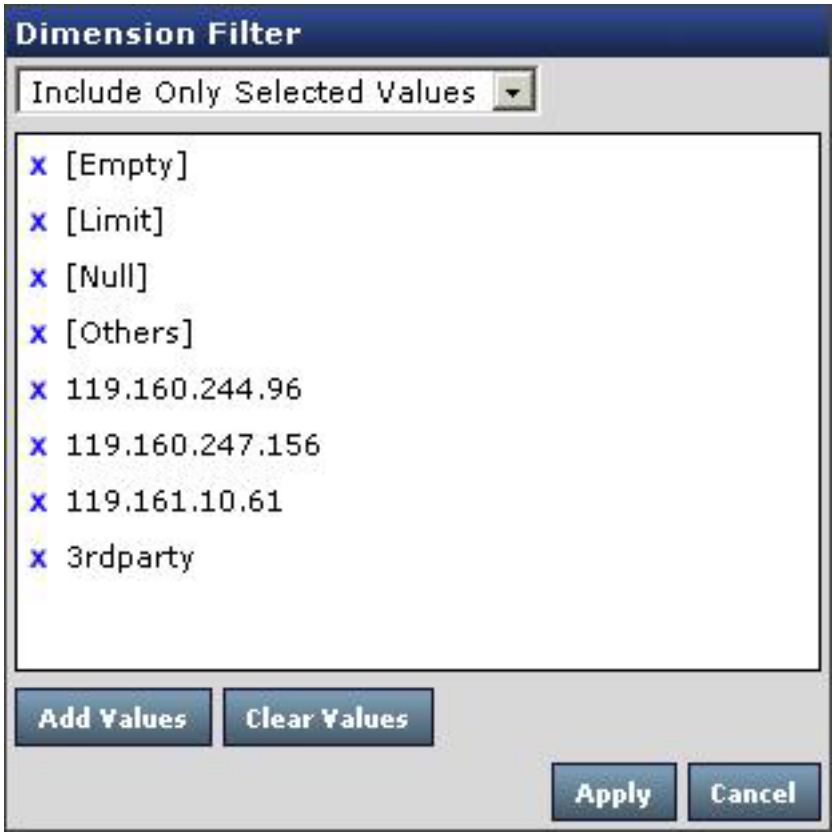


Figure 25. Top Movers - Dimension Filter

3. Choose your filtering option from the drop-down:

   Option Description

   No Filter
   Do not filter the report using dimension values.

   Include Only Selected Values
   Display in the report data only for the selected dimension values.

   Exclude Only Selected Values
   Remove from the report display data for the selected dimension values.

4. To specify values to filter, click **Add Values**.
   - To add values from the entire set of detected values, select `All Values`.
   - To add values only from a specified whitelist, select `Whitelisted Values`.
5. The Dimension Value Selector is displayed:

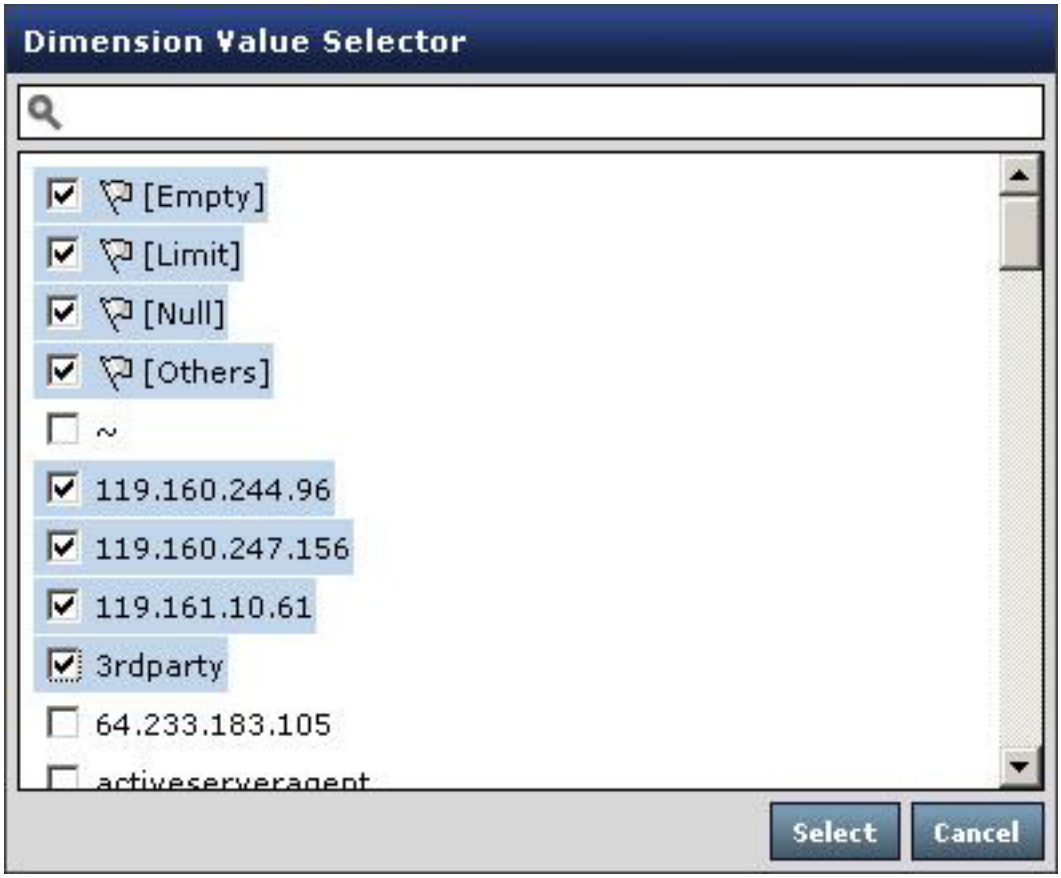


Figure 26. Top Movers - Dimension Value Selector

6. Select the dimension values to include or exclude.
   - You can choose to include or exclude the dimension constant values: `[Null]`, `[Empty]`, `[Limit]`, or `[Others]`. See "Dimension constants" in the *IBM Tealeaf Event Manager Manual*.
7. Click **Apply**.
8. The Dimension Filter dialog is displayed again.
   - To clear the list of values, click **Clear Values**.
9. To remove any listed filter value, click the `X` icon next to it.
10. To apply changes to dimension filtering, click **Apply**. The report is automatically updated.

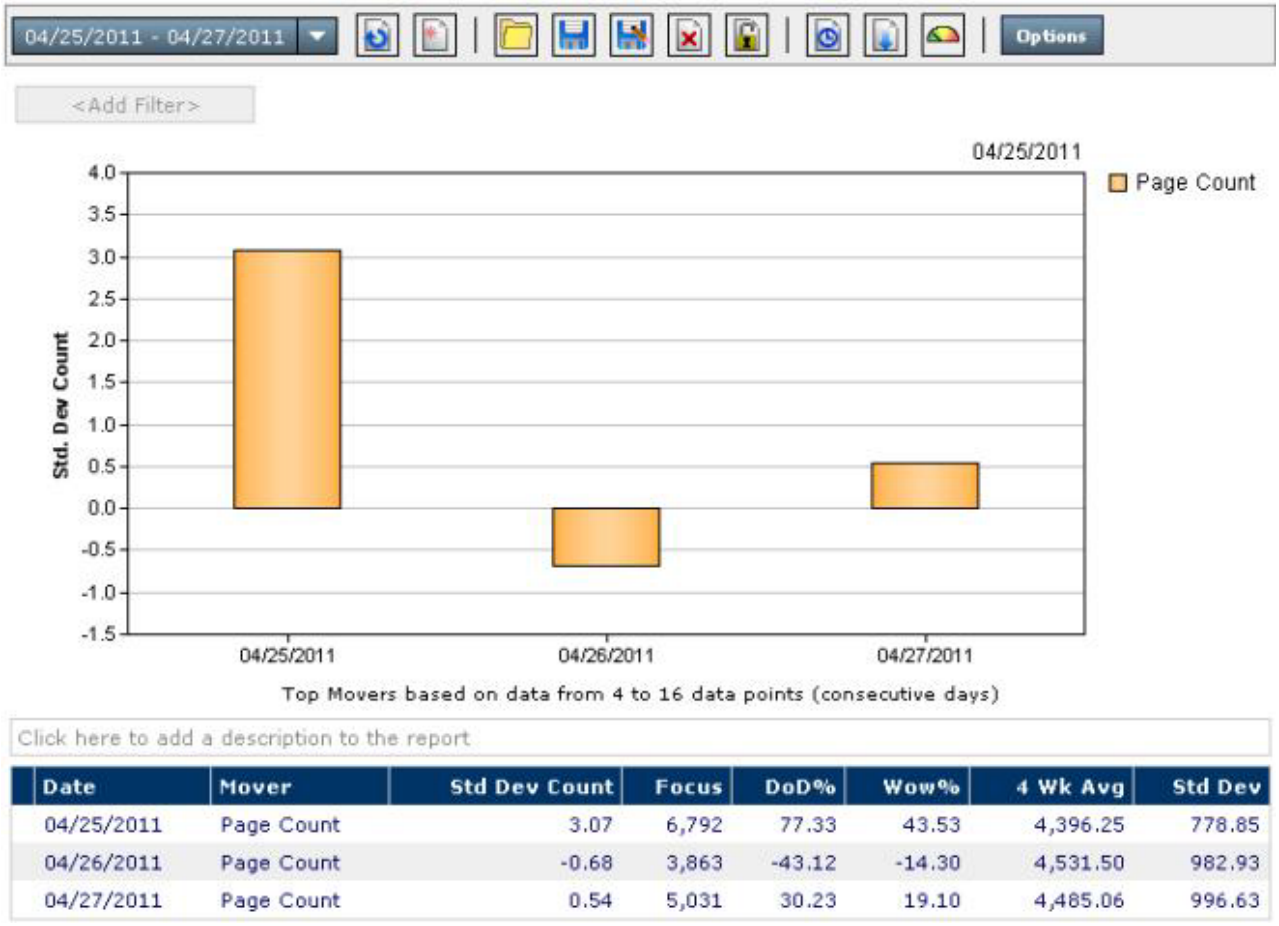
- To cancel changes, click**Cancel**.

Report Window

When changes are made to the report configuration, the report window is updated with the new report data.

- To force a refresh of the report window, click the Refresh ( ) icon in the toolbar.

  Note: If you are not seeing data for your Top Movers, additional configuration can be required. See "Troubleshooting - Top Movers" in the *IBM Tealeaf Troubleshooting Guide*.



Date	Mover	Std Dev Count	Focus	DoD%	Wow%	4 Wk Avg	Std Dev
04/25/2011	Page Count	3.07	6,792	77.33	43.53	4,396.25	778.85
04/26/2011	Page Count	-0.68	3,863	-43.12	-14.30	4,531.50	982.93
04/27/2011	Page Count	0.54	5,031	30.23	19.10	4,485.06	996.63

Figure 27. Top Movers Report Window

In the report, each mover is represented by vertical bars of a different color, showing the deviation values of each mover for each time period.

- Movers can be displayed across a range of multiple dates.

Each bar indicates the standard deviation for the values for a date, which is based on data over the rolling window.

- *Daily movers:* Report indicates change as a percentage between the focus date and the data for the mover in the rolling window.
- *Hourly movers:* Report indicates change as a percentage between the displayed hour of the focus date and the data for the mover in the rolling window.

Note: Top Movers are sorted for display that is based on the count of standard deviations and are colored based on that order. When a new Top Mover is added to an existing chart, color coding for each mover can change.

For each type of mover, the data in the rolling window depends on the configured calculation mode. See "Calculation Mode."

Calculation Mode

Just below the X-axis of the chart, you can review the calculation mode that is used for the Top Movers in the report.

For each calculation mode, a different statement is displayed. In the following examples, the minimum number of data points is configured to be 4 and the maximum number of data points is 16.

- These values are the default values. The minimum and maximum values can be configured by parameter. See "Rolling window" on page 67.

Calculation Mode
Report Statement

Consecutive Days
`Top Movers based on data from 4 to 16 data points (consecutive days)`

Same Days
`Top Movers based on data from 4 to 16 data points (same day of week)`

- For more information about calculation modes, see "Top Movers Calculation Mode" on page 65.

Chart Description

Below the chart, you can enter a description of the chart, which is also displayed in exported versions.

- To enter a chart description, click the text box below the chart. Enter your description and click **Apply**. To save the changes to your chart, click the Save ( ) icon in the toolbar.

Mover Detail Table

Details of the report are displayed in a table below the graph.

- You cannot sort by the name of the mover. To arrange the grid in a specific order, add the movers to the report in the wanted order.
- To resize the width of a column, click and drag the right border of the column header.
- If any column contains the value `--`, there is insufficient data to complete the mover calculation.

Column
Description

`Date` Date stamp for mover data. For hourly movers, each row represents a different hour of the day.

Threshold
If thresholding is applied to the visual chart, a blue dot indicates the row values that are outside the defined threshold. See "Visual Threshold" on page 64.

`Mover` Name of the mover

- Click the Top Mover name link to drill down on the data. See "Mover drill-down" on page 57.

`Std Dev Count`
Number of deviations is the difference between focus period's count minus the average of the previous set of data points. The formula:

```
(Current count - avg of prev X data points) /
 (Standard deviation of prev X data points)
```

`Focus` Count of instances during the focus period

DoD% Change in counts between the previous week's day and the focus date, as a percentage of the previous week's day

HoH% Change in counts between the previous week's hour and the displayed hour for the focus date, as a percentage of the previous week's hour

Weekly Avg or Daily Avg
The average of values over the rolling window, depending on the calculation mode

- This calculation is based on the minimum and maximum values to use in the calculation. See "Rolling window" on page 67.

Std Dev
Calculation of the standard deviation

Mover drill-down

You can drill-down on each mover in the report to reveal the base reporting data from which the deviations were calculated. Depending on the type of mover, a different type of report is displayed in the Tealeaf Report Builder:

Mover Type
Report Type

event Event report for the focus day

dimension
Report with the selected dimension as the Y-axis. The X-axis is populated by the Day dimension if the source is a Daily mover or Hour of Day dimension, or if the source is an Hourly mover.

ratio Report with the selected ratio for the focus day and the ratio with the dimension and segment value as whitelisted values.

See Chapter 3, "Tealeaf Report Builder," on page 105.

Report Display Issues

This information provides some basic details about how to evaluate issues in the display of these reports. When you are creating a Top Mover report, you are relying on the successful capture, aggregation, and storage of the underlying data. The variations in this data are then calculated and stored, becoming available for reporting. While theTop Movers page enables you to add movers as soon as they are created or to combine multiple movers for any focus date, the underlying data may not support the report.

- It can take at least two weeks after a mover is created before it is populated with sufficient useful data to populate a Top Movers report. See "Deviation Calculations" on page 65.

If the report is blank, the combination of movers and focus date results in no available data at all.

- Try changing the date range. If you cannot find a date that contains mover data, you must review the date against the creation date for the mover in the Change History dialog. See "Object Change History" in the *IBM Tealeaf Event Manager Manual*.
- Through the Tealeaf Report Builder, you can create a simple report to verify that the source events or dimensions are populated with data for the selected focus date. See Chapter 3, "Tealeaf Report Builder," on page 105.

If the report contains multiple movers and one of the movers lacks data, the data for the other mover is still displayed.

- Try removing the mover that contains data to see whether the preceding error message is then displayed.

If you cannot find the mover to add, verify that you have selected the correct type of mover to add. Only Hourly movers are displayed if you are using Hourly movers in the report page.

Report display limits

Note: If you add a Top Mover or dimension and the total number of potential rows to be displayed in the detail table exceeds 1,000 rows, a warning indicates that report performance can be affected. If the warning is ignored, the Report Builder attempts to query and display the report. If this row limit is indeed exceeded in the returned data, the report is not displayed. See "Report query returned too many rows (> 1,000). Please filter or TopN your request." on page 147.

- If the warning is canceled, the proposed changes are maintained so that you can apply filtering to reduce the scope of the report. See "Dimensional filtering" on page 52.

Changing the Focus Period

The Top Movers report can display top movers over multiple days. To change the focus date range, complete the following steps.

- The default focus period is the last complete period for the type of Top Mover. For example, if it is 10:30 AM on April 26, the default time for hourly Top Movers is 9:00 on April 26. For daily Top Movers, the default focus is April 25.

1. To change the focus period, click the date in the toolbar. The Date Selector is displayed:

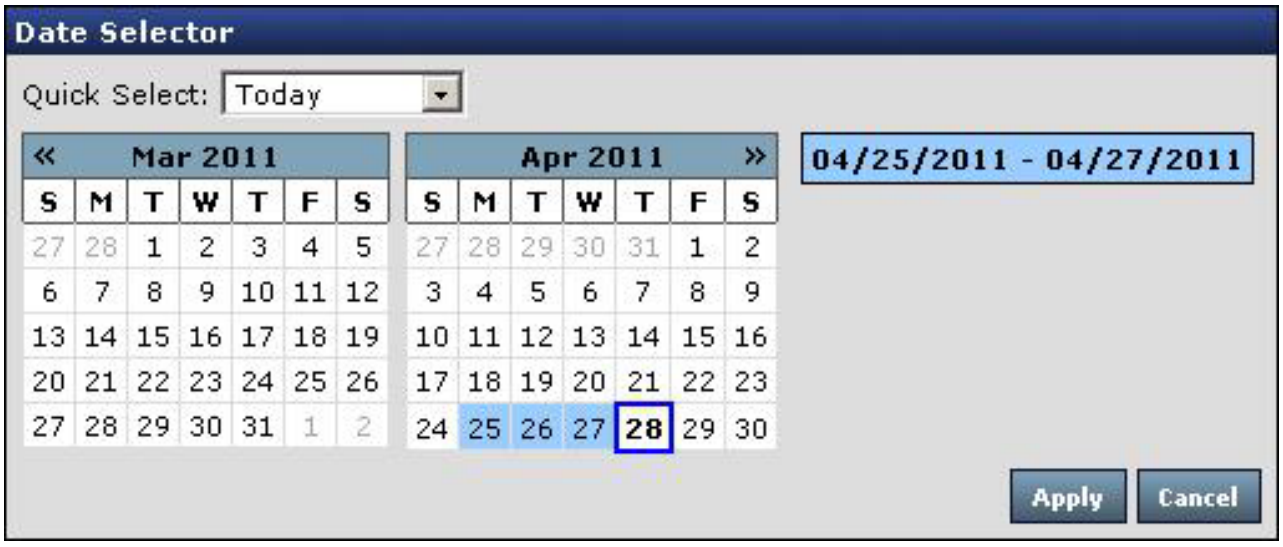


Figure 28. Date Selector

2. In the Date Selector, select the date range on which to focus.

- Select the first date in the range. If you want to select multiple dates, select the second date. The range of dates between the two dates is selected, including the selected dates.
- To select date ranges that extend back from today's date, make a selection from the **Quick Select** drop-down.
- You can use the << and >> buttons to select from different months.

3. If you are using Hourly movers, you can select the hour of the day that is displayed from the **Hour** drop-down.
   - By default, Hourly Top Movers display data for all available hours of the current date.
4. To generate the report for the selected focus period, click **Apply**.

   Note: The report is automatically refreshed with data calculations based on the new focus date. If data is not available for any part of this new reporting period, `0` values are inserted into the calculations instead.

Report Access Permissions

In the Report Access Permissions window, you can select the users and groups who can view and edit the current report.

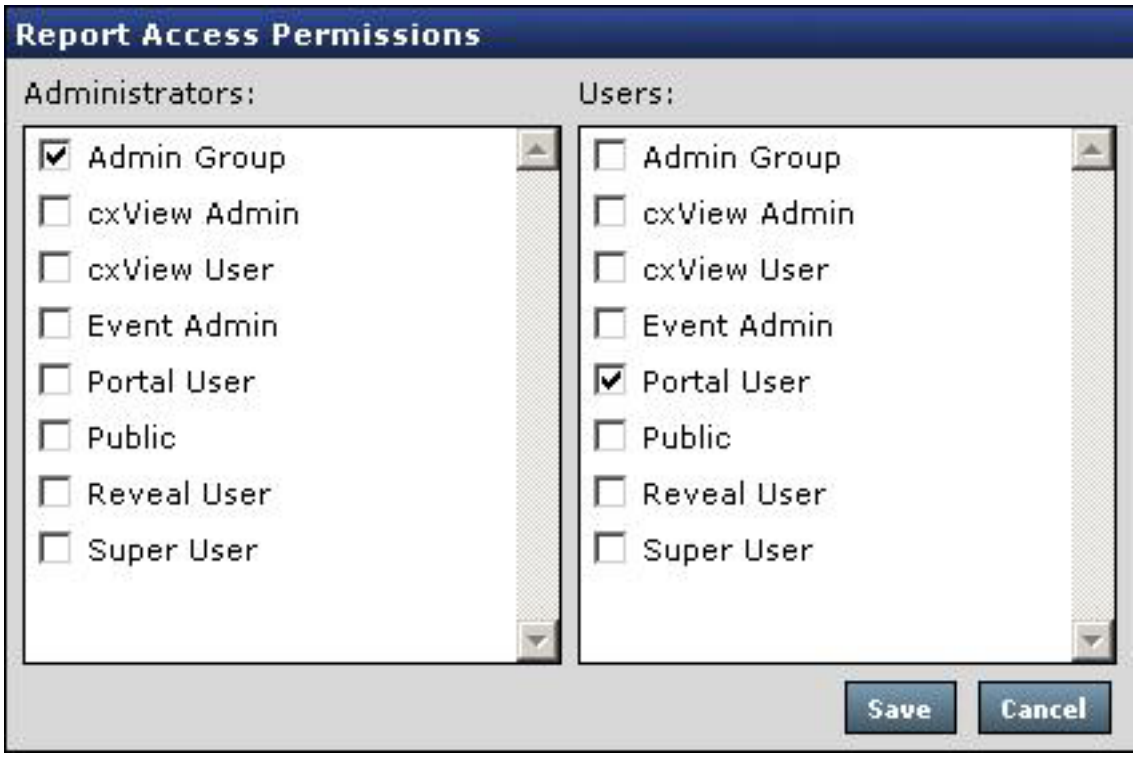


Figure 29. Report Access Permissions

- To configure access, select the appropriate user groups in the left or right panel and click **Save**.

In the left panel, you can configure the administrators of the report by available user group.

- Report administrators have all of the permissions available to specified users of the report.

- Report administrators can edit and delete the report.
- Members of the `Admin` and `cxView Admin` groups are administrators for all reports in the system.

In the right panel, you can configure the users of the report by available user group.

- Report users can see the report, change parameters, export it, and save it under a new name.

You can also change mover report access permissions through the Report Manager.

- See Chapter 4, “Report Manager,” on page 151.

Report Schedules

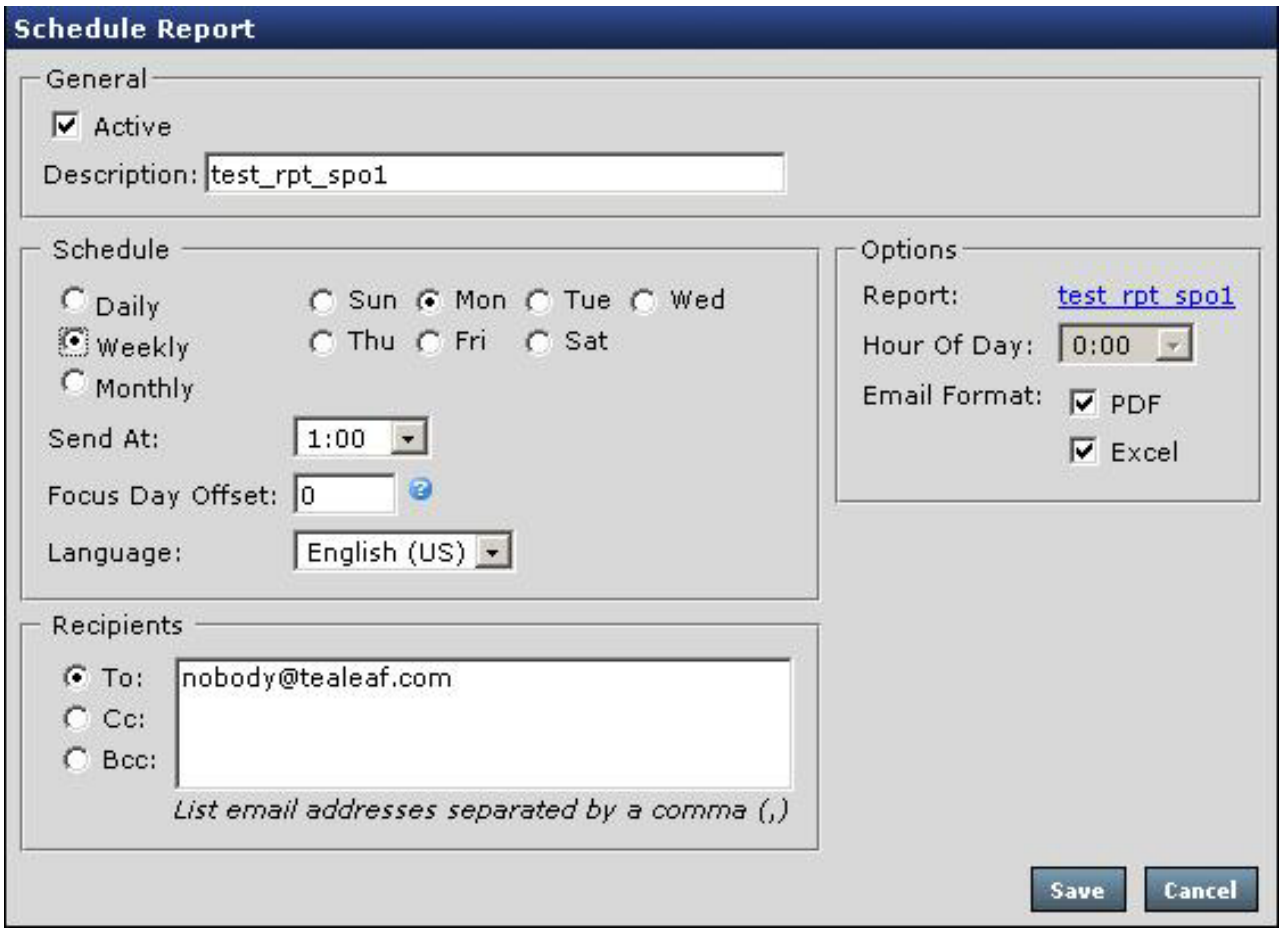


Figure 30. Schedule Report

You can schedule the execution of the report on a daily, weekly, or monthly basis for delivery to selected users in PDF or Excel format.

Note: To configure and deliver report snapshots from the Portal, you must enter a valid email address for your user account. See "My Settings" in the *IBM Tealeaf cxImpact User Manual*.

- To schedule a report execution, click the **Schedule Report** ( ) icon in the toolbar. The **General** tab of the Report Manager is displayed.
- See Chapter 4, “Report Manager,” on page 151.
- For more information about configuring access permissions for reports, see "Report Access Permissions" in the *IBM Tealeaf cxImpact Administration Manual*.

Export

To export a displayed scorecard, click the Export ( ) icon in the toolbar. Select the type of export:

- Excel - Export the report data in XML format for use in Microsoft Excel.
- PDF - Generate the report in PDF format.
- Email - Generate the report in either format and send it by email:
  1. Select the report format: PDF or Excel.
  2. Enter an optional message.
  3. Enter recipient email addresses or aliases, which are separated by commas.
  4. To send the report, click **Send**. The report is exported in the selected format and emailed to the specified list of addresses.

Adding Reports to Dashboards

You can add the currently displayed report to a dashboard. To add it, click the **Add Report to Dashboard** icon in the toolbar. The Add Report to Dashboard dialog is displayed.

- You can add reports to dashboards to which you have access.

  Note: You can add report charts to dashboards only if the report can be charted. See “Report Window” on page 54.

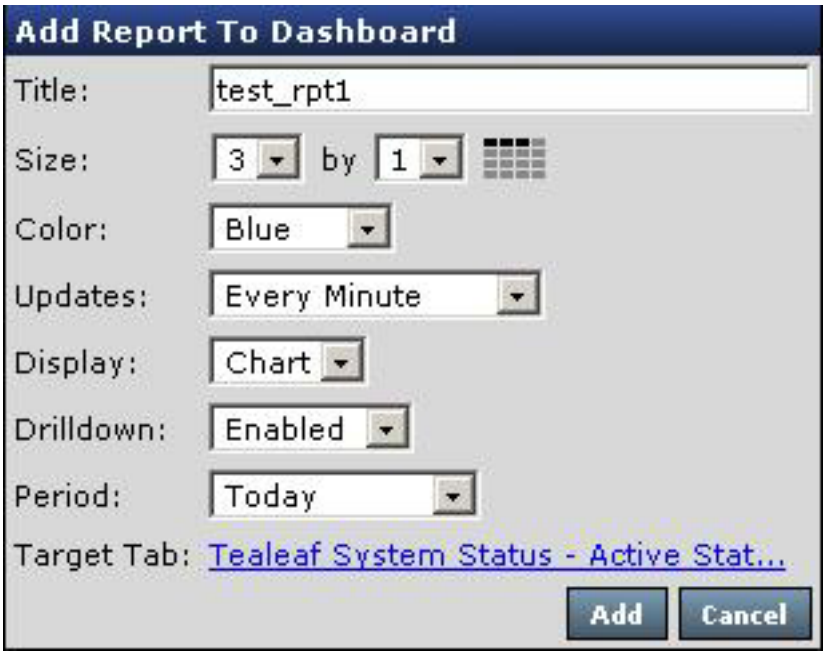


Figure 31. Add Report to Dashboard

Property
Description

Title You can edit the title that is displayed in the dashboard without changing the title to the report.

Size Define the size of the report as it displayed in the dashboard. These values are grid blocks, which are reflected in the image to the right of the sizing parameters.

Color Specify the base color of the report.

Updates
You can configure how frequently the dashboard report queries for updated information from the saved report.

- There is no use in configuring updates to happen more frequently than once per hour or once per day, depending on the type of Top Movers in the report.

  Note: If the report that you are adding to the dashboard references data from completed sessions only, configuring an update interval to be more frequent than the interval at which the data collection process is run is not useful. By default, data collection occurs every 5 minutes; in this case, report updates must not occur more frequently than a 5 minute interval for reports that contain completed session data only. If the report references data from active sessions, you can set the update interval to be more frequent than every 5 minutes. Depending on the configured report and the number of reports in the dashboard, there can be performance impacts.

Hour For hourly top movers, you can select the hour of the selected date to report in the dashboard component.

- The `All Hours` selection displays all hours of the selected day.

Period
For top movers, you can select the period of the selected date to report in the dashboard component. You can choose to update the report daily, weekly, monthly, or quarterly.

Display
Select the component of the report to display in the dashboard: `Chart` or `Table`.

- You can add both as separate components to the same dashboard.

Drilldown
When `Enabled`, dashboard users can drill into the dashboard data to review the underlying report.

Target Tab
To select the dashboard and its tab to which to add the report, click **Select a Tab**. Select the dashboard and tab to which to add the report.

- See "Adding a report component" in the *IBM Tealeaf cxView User Manual*.
- For more information about the properties, see "Common Dashboard Component Properties" in the *IBM Tealeaf cxView User Manual*.

Options

To change report options, click the **Options** button in the toolbar.

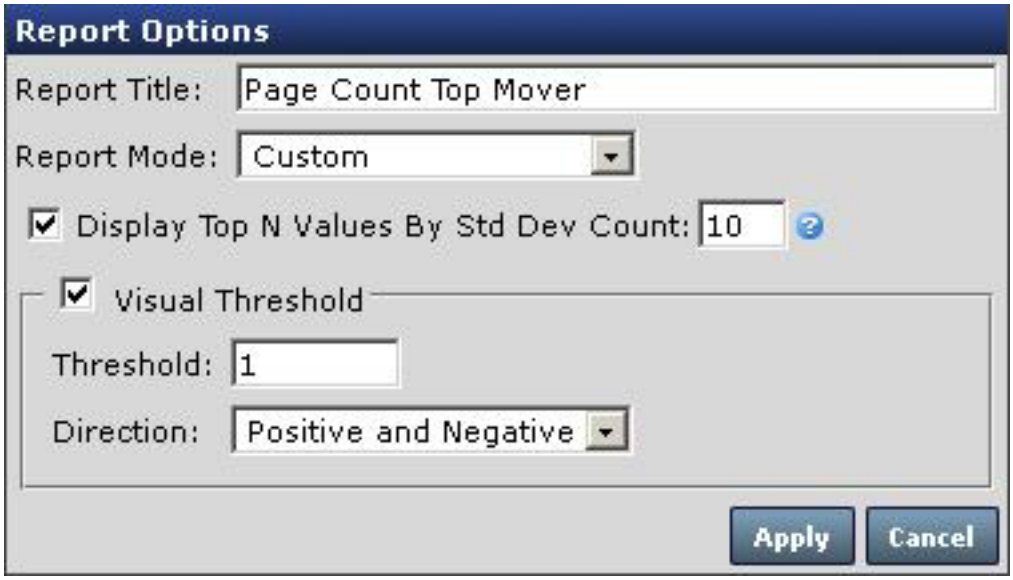


Figure 32. Report Options

In the Options screen, the following options are available:

Option Description

Report Title
To add a title to the report, enter the title in the text box.

Report Mode
Select a mode for the report. See “Report Mode” on page 64.

Display Top N Values by Std Dev Count
When selected, you may configure the report to display the topmost movers that you specify in the checkbox.

- Additional information on Top N filtering is available in the Info tooltip.
- See “Top N filtering” on page 51.

Report Mode

As needed, you can configure the report to be displayed in one of the following modes:

Mode **Description**

Custom Top Movers included in the report are displayed according to your specific selections.

All Hourly Top Movers
Top Mover report displays all currently active hourly Top Movers.

Note: Depending on the number of hourly Top Movers currently active in the system, this option can make the chart display hard to read. You must combine this mode with a Top-N configuration to limit the display to the most active Top Movers.

All Daily Top Movers
Top Mover report displays all currently active daily Top Movers.

Note: Depending on the number of hourly Top Movers currently active in the system, this option can make the chart display hard to read. You must combine this mode with a Top-N configuration to limit the display to the most active Top Movers.

As needed, you can configure the automatic creation of hourly and daily Top Movers for events and dimensions.

- See "Data Management for Top Movers" in the *IBM Tealeaf Event Manager Manual*.

Visual Threshold

For a configured report, you can define thresholds at which to apply visual shading to the display to indicate that the shaded areas are not important to the report.

- In the Options screen, click the**Visual Threshold** check box to enable thresholding.

Option Description

Threshold
Set this value to a positive number to indicate the absolute value of the threshold to apply to the report.
- Each integer value for the threshold corresponds to one standard deviation.
- You can apply one threshold at a time to a report.

Direction
Define the direction to which the threshold is applied:
- `Positive and Negative` - Movers with standard deviation counts greater than the positive of the `Threshold` value and less than the negative of the `Threshold` value are considered to be important. Values inside these threshold limits are shaded.

- `Positive` - Movers with a standard deviation count greater than the `Threshold` value are visible. Other values, including negative values, are shaded.
- `Negative` - Movers with a standard deviation count less than the `Threshold` value are visible. Other values, including positive values, are shaded.
- If a positive integer is entered for a negative threshold direction, it is automatically converted to a negative value.

To apply the specified threshold, click **Apply**.

In the following example, a threshold value of 1 is applied to positive and negative mover values.

- The shaded area reflects deviation values that are not considered important.
- In the detail table, one value is indicated to exceed the defined threshold.

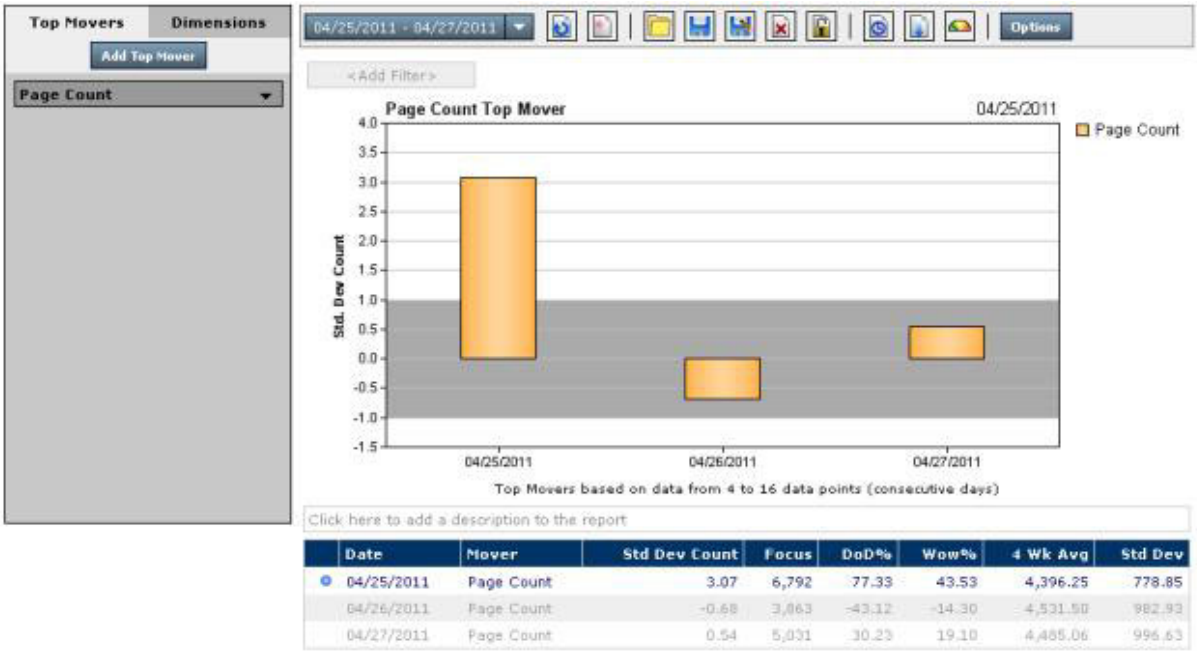


Figure 33. Top Movers report with positive and negative threshold=1 applied

Deviation Calculations

This information provides some background information on how Tealeaf computes standard deviations, which are used to populate Top Movers.

Top Movers Calculation Mode

At a global level, you can configure the days over which Top Movers are calculated. In either mode, Hourly and Daily Top Movers are available.

1. **"Consecutive Days" on page 66**
2. **"Same Days" on page 66**

Note: Consecutive Days mode is useful for monitoring variation of recent activity. For a longer term perspective, Same Days may be a better choice.

Tealeaf administrators can configure the calculation mode through thePortal Management page.

Note: Switching between Top Mover Calculation Modes results in the clearing of the old data from the database. When the mode is changed, data can be back-populated where possible. Avoid changing modes frequently.

See "Data Collector" in the *IBM Tealeaf cxImpact Administration Manual*.

Consecutive Days

When Top Movers are computed over consecutive days, the data set includes the focus day and all days preceding it that have not been trimmed.

- In the table below, **F** indicates the focus day, and **SD** indicates the data required to calculate the standard deviation for a 7 consecutive-day Top Mover calculation.
- The Top Mover calculation requires 8 days of data.

Table 4. Consecutive Days

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	SD	**SD**	**SD**	**SD**	**SD**	**SD**
SD	**F**					

When Top Movers are calculated in Consecutive Days mode, you can see data within a few days, instead of waiting four weeks to see a valid data set in the Same Days mode.

Same Days

In Same Days mode, top movers are calculated based on the values for the same hour or day from the preceding weeks. For example, deviation values for Wednesday are computed using data from the previous Wednesday.

- In the table below, **F** indicates the focus data, and **SD** indicates the data that is used to calculate the standard deviation for the 4 same-day Top Mover calculation.
- The Top Mover calculation requires 5 weeks of data.

Table 5. Same Days

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	SD					
	SD					
	SD					
	SD					
	F					

Depending on how much data is available, Same Days mode computes Top Movers over the preceding 4 to 16 weeks of data. If insufficient data is available to complete the minimum number, no data is displayed for the Top Mover in the report.

Rolling window

To complete calculation of a Mover, the following table indicates the default required number of data points for the calculation:

Table 6. Rolling window

Calculation Mode	Default Minimum Number of Data Points	Default Maximum Number of Data Points
Consecutive Days	4 days	16 days
Same Days	4 weeks	16 weeks

Calculations are made by looking backward from the current date to the date indicated by the Maximum Number of Data Points.

- To complete a valid calculation, the Minimum Number of Data Points must be present. If the minimum number of data points is present, then the standard deviation and average calculations can be completed.
- For event-based Movers, the count of data points does not include any tabulations for null values, which can occur during periods when the event was inactive or data was not available.
- For ratio-based Movers, the count of data points does include any tabulations during periods when the event was inactive or data was not available. The standard deviation and average calculations ignore the null value data point.

Configuring the data volume of the rolling window

The minimum number and maximum number of days of data that is required for a valid Top Mover calculation are defined by parameter:

- `Top Movers - Minimum data points for calculations`
- `Top Movers - Maximum data points for calculations`
- See "Data Collector" in the *IBM Tealeaf cxImpact Administration Manual*.

Updates

Depending the type of Top Mover, data is recalculated on an hourly or daily basis.

- Hourly movers are calculated on the first Data Collection run that occurs 30 minutes after the hour. Any newly available data is applied to the calculations up through the preceding complete hour. For example, if the calculation is done at 10:40 am, it includes any new data that is timestamped before 10:00 am.
  - In the preceding example, data with a timestamp between 10:00 am and 10:40 am is not applied to the calculations during the current run.
- Daily movers are calculated at 4:30 am each morning. Any newly available data is applied to the calculations up through the preceding complete day. For example, if the calculation is done at 4:30am on April 26, it includes any new data that is timestamped before 12:00 am April 26.
  - In the preceding example, data with a timestamp between 12:00 am and 4:30 am April 26 is not applied to the calculations during the current run.
  - You can change the time when calculations are done for daily top movers. For more information, see the `Top Movers - Time for Daily Calculation` in "Data Collector" in the *IBM Tealeaf cxImpact Administration Manual*.

In some cases, a Top Mover update gathers new data that had been spooled during an earlier period. If spooled data is processed, then when the Top Mover

calculation run next runs, the spooled data is included as part of the Top Mover data set. All relevant calculations are done to include the newly captured data in the Top Mover values.

Note: In environments where data is spooling, Top Movers can be retroactively recalculated when the spooled data is later processed.

See "Data Collector" in the *IBM Tealeaf cxImpact Administration Manual*.

Basic Calculations

Movers are calculated by using a simple standard deviation formula:

$$s = \sqrt{\frac{\sum(x - \overline{x})^2}{N - 1}}$$

Figure 34. Formula for standard deviation

where:

symbol
Description

s Standard deviation

x Captured value

$\overline{x}$ Average of captured values

N Number of captured values

The standard deviation is calculated by:

1. Summing the square of the difference between each value and the average
2. Dividing that value by the number of values - 1
3. Calculating the square root of that value

Note: When a mover is calculated and the count is zero, if at least one interval for that mover exists with data before this interval, then the zero count is written as the value for the current interval.

Example STD Calculation for Top Mover

Tealeaf implements the Top Mover calculations that are based on extracting the data points over the rolling window, depending on the following factors:

- Type of mover: See “Hourly versus Daily movers” on page 51.
- Configured required dataset for valid rolling window: See “Configuring the data volume of the rolling window” on page 67.
  - If the data set includes fewer than four data points, the standard deviation is not computed and is reported as `--`.

- Calculation mode: See “Top Movers Calculation Mode” on page 65.

In the following example, the differences between daily and hourly movers are illustrated. These configuration options are assumed:

- Type of mover: Daily and Hourly
- Configured required dataset for valid rolling window: The following are the default minimum and maximum values:
  - `Top Movers - Minimum data points for calculations - 4`
  - `Top Movers - Maximum data points for calculations - 16`
- Calculation mode: Same Days

For calculating a valid Daily or Hourly top mover with the preceding configuration options, a minimum of four weeks of data is required.

Suppose that you are calculating a mover of counts for Event A. The counts are summed in the following manner for Daily or Hourly movers in this example:

Day count

Focus date
sum0

one week ago
sum1

two weeks ago
sum2

three weeks ago
sum3

four weeks ago
sum4

For a Daily mover, the counts are summed over 24-hour periods in the rolling window, while Hourly movers use hourly counts during the rolling window.

The metric `STDev_SameDays` is computed by using the following formula:

```
StDev_SameDays = std of (sum1, sum2, sum3, sum4)
```

The average of those four sums is computed as follows:

```
avg_SameDays = avg of (sum1, sum2, sum3, sum4)
```

The count mover is then computed by using the following formula:

```
countDev_AvgSameDays = (sum0 - avg_SameDays)/StDev_SameDays
```

For more information about creating movers, see "TEM Top Movers Tab" in the *IBM Tealeaf Event Manager Manual*.

Ratio Movers

You can also create movers that are based on the ratio of two events. To compute the mover of a ratio, the ratio is treated as a single event whose count is the ratio of numerator to denominator.

Note: The creation and reporting on ratio movers is an enhancement that is associated with cxView, a separately licensable component of the Tealeaf CX system. See "Enhancements to Top Movers for cxView" in the *IBM Tealeaf cxView User Manual*.

Note: If the denominator of a ratio evaluates to zero, a null value is recorded. If there are still sufficient data points within the rolling window, then the mover is calculated.

See "Creating or Editing a Ratio Mover" in the *IBM Tealeaf Event Manager Manual*.

Analyzing Performance

Tealeaf can monitor your website's render time and throughput in delivery of content to your site's visitors. Through various statistics that are gathered and computed from hit data, the following performance reports can help you to identify potential bottlenecks in your web infrastructure and in how content is delivered to the visitor.

To access the performance reports:

1. From the Portal menu, select **Analyze** > **Performance Reports**.
2. Click the **Open** ( ) icon in the toolbar.
3. Select a report to display.
4. Configure as needed. See “Configuring Performance Reports.”

Some of these reports are displayed as dashboard components. See "Technical Site Metrics Dashboard" in the *IBM Tealeaf Reporting Guide*.

For more information on Performance Reports, see "Client Performance Report," "Response Time Report," and "Connections Report" in the *IBM Tealeaf cxImpact Reporting Guide.*

Configuring Performance Reports

To select and configure a Performance report, complete the following steps.

1. To open a report, click the **Open** icon in the toolbar. Select one of the following reports:
   - **“Client Performance Report” on page 74**
   - **“Connections Report” on page 86**
   - **“Response Time Report” on page 87**
   - For more information about the toolbar, see “Toolbar” on page 71.
2. By default, Performance reports are configured to display data for today's date. To change the date range, click the date that is displayed in the toolbar. See “Date Range Selector” on page 71.
3. Performance reports can be filtered based on a pre-configured list of dimensions that are provided by Tealeaf. See “Options” on page 72.
4. To refresh the data, click the**Refresh** icon in the toolbar.
5. Depending on the report and your user settings, you can click links in the report to reveal detail reports on the displayed data.
6. To export the report data for local use, click the **Export** icon in the toolbar. See “Export” on page 92.

Toolbar

The following toolbar is displayed above each report.

Figure 35. Performance reports toolbar

Table 7. Toolbar.

Icon	Command	Description
	Date Selector	Click to select a new date range to display in the report. See "Date Range Selector."
	Refresh	Refresh the report data.
	Open	Open and display a different Performance report.
	Export	Export report data. See "Export" on page 92.
	Options	Open Performance report options. See "Options" on page 72.

Date Range Selector

You can select a single day or range of dates to display in the report.

- To open the Date Range Selector, click the date that is displayed in the toolbar.

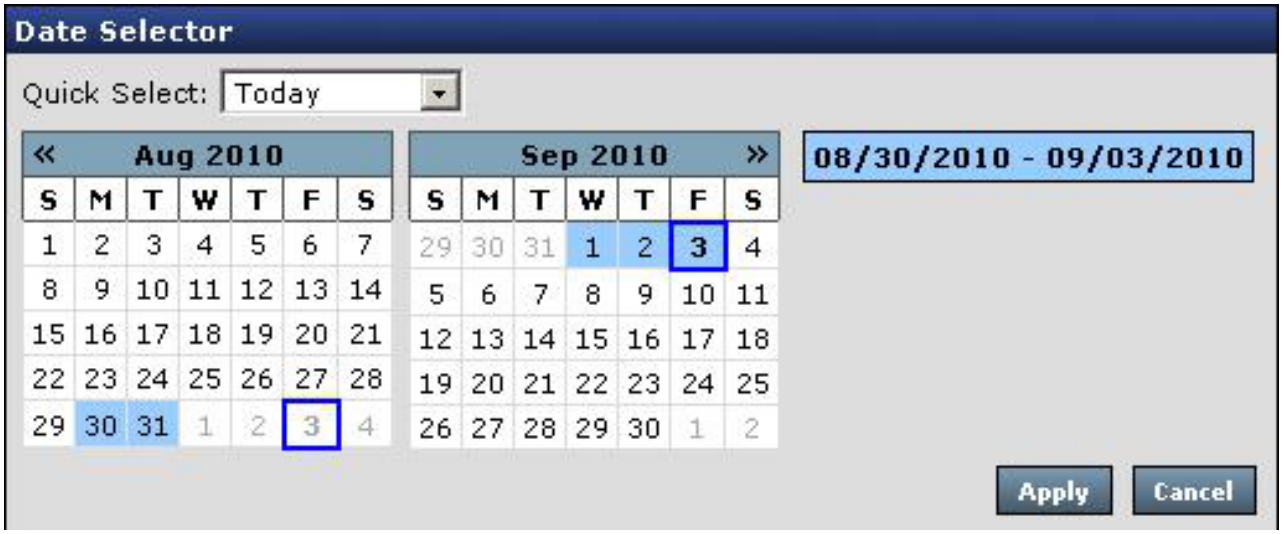


Figure 36. Performance Reports - Date Range Selector

In the above, the business week of 8/30/10 to 9/3/10 is selected for display.

- To configure a different date, click the date, or you can use the arrow buttons on each month to go to different months.

- To select a range of dates, click the earlier date. Then, click the latter end date. The range of dates in between and inclusive is selected.
- To select a pre-defined date range that is based on today's date, make a selection from the Quick Select drop-down.
- To apply the new date or date range to the report, click **Apply**. The report is automatically updated.
- To cancel changes to the date range, click **Cancel**.

Options

You can configure the following options for the displayed Performance report. These options persist if you load a different report.

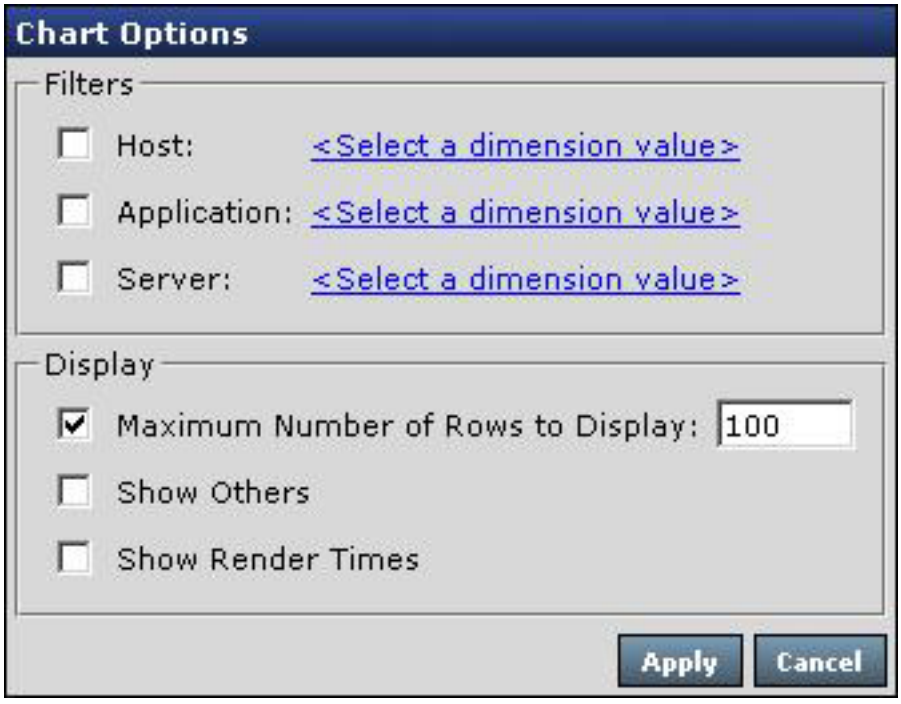


Figure 37. Performance Reports - Options

The following options are available.

- When one or more of these filters is applied, they are listed at the top of the updated report.

Option Description

Host Filter the report to display values only from the selected host. See "Applying a dimension filter" on page 73.

Application
Filter the report to display values only from the selected application. See "Applying a dimension filter" on page 73.

Server
Filter the report to display values only from the selected server. See "Applying a dimension filter" on page 73.

Maximum Number of Rows to Display
You can configure the report to display a maximum number of rows. Enter a value in the text box and select the check box.

Note: If the check box is not selected, all applicable rows of data are retrieved and displayed in the report. Depending on the data set, performance can be impacted, and the report can take a while to generate.

Show Others
Click the check box to display the [Others] dimensional values.

Note: If the URL dimension is not populated with values, the Performance reports are not populated. As a workaround, you can enable the Show Others option to display the [Others] values. See "TEM Dimensions Tab" in the *IBM Tealeaf Event Manager Manual*.

Show Render Times
(Available on some reports) Click the check box to the display the render times in the table.

- This option is only available on some reports if UI Capture is configured and deployed. See the *IBM Tealeaf UI Capture for j2 Guide*.

Applying a dimension filter

Optionally, you can filter any Performance report to display data for a selected value from one or more of the following dimensions:

Dimension
Description

Host The host of the application. for example, www.straussandplesser.com

Application
The application name. for example, store

Server A specific server that is hosting your application

You can filter the report for one specific value per dimension. You can use any number of the listed dimensions to filter your report.

These values are captured in a default report group that is provided by Tealeaf as part of the installation. See "URL/Host/App/Server Report Group" in the *IBM Tealeaf Event Manager Manual*.

Drill-Downs on URL dimension

Each report type supports drill-down to review a detail report on individual URLs.

- The URL values are automatically normalized in the Windows pipeline. See "Tealeaf Reference Session Agent" in the *IBM Tealeaf CX Configuration Manual*.

Report Type
Drill-down Detail Report

"Client Performance Report" on page 74
"Render Times detail report" on page 78

"Connections Report" on page 86
"Connection Types Detail Report" on page 87

"Response Time Report" on page 87
"Response Time Detail Report" on page 87

Notes on Calculations

The following notes apply to calculations that are displayed in the detail tables.

Item **Calculation**

Totals row

For values that are displayed in a row of Totals, the calculation is the sum of all values in the column.

Client Performance Report

The Client Performance summary report displays page information as reported by Tealeaf UI Capture. UI Capture enables the capture of client user interface events that do not result in transactions to the web server. This capability requires additional installation and implementation.

- To review detailed breakdowns by time period for this report, click a Page identifier in the first column of the report. See “Client Performance Report.”

For the Top pages, the following summary charts are displayed.

- In the Summary report, top pages are listed in descending order by count.
- You can change the displayed pages by applying report filters. See “Options” on page 72.

The total count of client user interface hits is available as an activity report and in the Technical Site Metrics dashboard.

- See “Activity Reports” on page 22.
- See "Technical Site Metrics Dashboard" in the *IBM Tealeaf Reporting Guide*.

Render Times Chart

Average render time in seconds.

- This chart can be useful in determining whether specific pages have any performance issues.

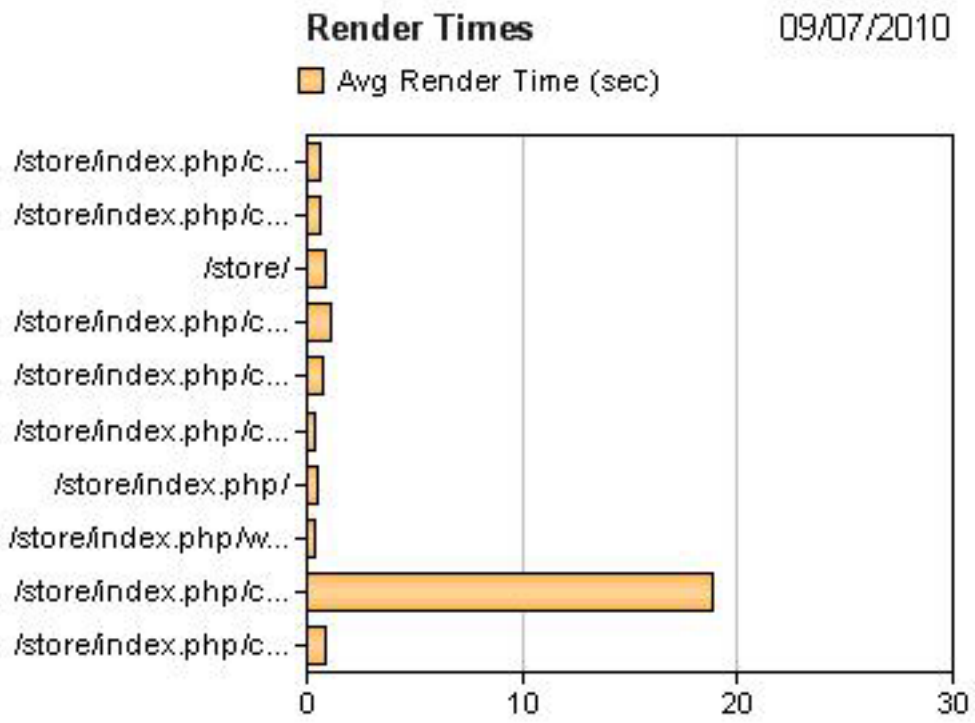


Figure 38. Render Times Chart

For more information about the fields in this report, see "Table Fields" on page 77.

- To see details of this report for an individual URL, click the hyperlink for the URL of interest. See "Detail Reports by URL" on page 78.

Broken Images Chart

Average and maximum number of broken image links.

- Use this chart to determine if individual pages have broken image references.
- Many pages with broken images can indicate server-side problems.

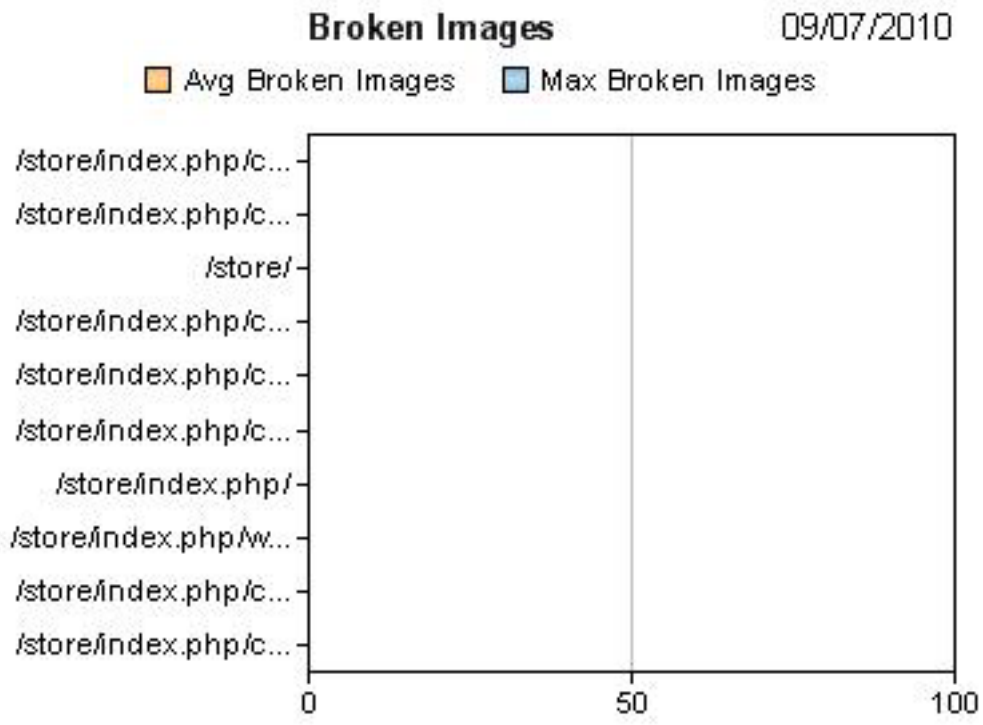


Figure 39. Broken Images Chart

For more information about the fields in this report, see "Table Fields" on page 77.

- To see details of this report for an individual URL, click the hyperlink for the URL of interest. See "Detail Reports by URL" on page 78.

JavaScript Alerts Chart

Average and maximum number of JavaScript alerts that are encountered on pages that are served to visitors during the focus period.

- Use this chart to assess if JavaScript-related issues are displayed in the pages that are delivered to the client.

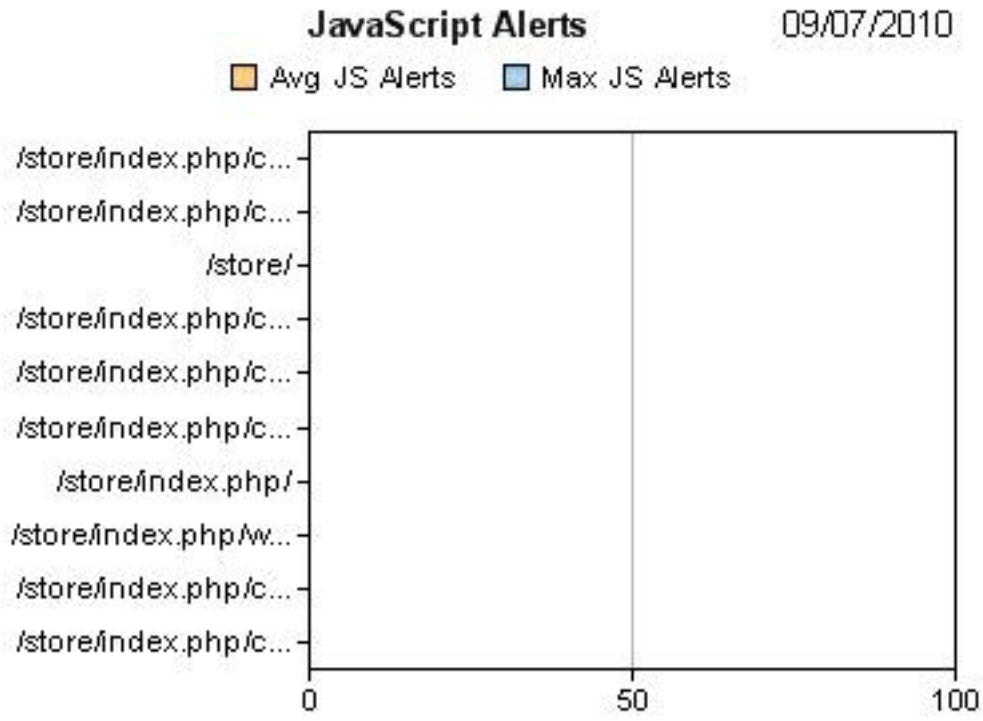


Figure 40. JavaScript Alerts Chart

For more information about the fields in this report, see "Table Fields."

- To see details of this report for an individual URL, click the hyperlink for the URL of interest. See "Detail Reports by URL" on page 78.

Table Fields

The following fields can be displayed in the tables below the performance reports.

- By default, the detail table is sorted in descending order by the Hit Count.
- Click a column header to sort the detail table. Click it again to reverse the sort order.

Field Name
Description

URL The URL to which the row of detail applies.

- You can click any URL to see a detail report specific to the selected path. See "Render Times detail report" on page 78.

Hit Count
The number of hits that are served for the specified focus period.

Avg Render Time
The average time in seconds to render the page for the visitor.

Max Render Time
The maximum time in seconds to render the page for the visitor.

Avg Broken Image Count
The average number of broken image links on a page served to visitors during the focus period.

Max Broken Image Count
The maximum number of broken image links on a single page that is served to visitors during the focus period.

Avg JS Alert Count
The average number of alert dialog boxes that are generated by your site's JavaScripts on pages that are served to visitors during the focus period.

Max JS Alert Count
The maximum number of alert dialog boxes that are generated by your site's JavaScripts on pages that are served to visitors during the focus period.

Detail Reports by URL

To access any detail report for a specific URL, click the hyperlink for the URL in the detail table at the bottom of the screen.

From the View drop-down, select one of the following views:

Note: Data for all of these reports is gathered and submitted in UI Capture. See the *IBM Tealeaf UI Capture for j2 Guide*.

Option Description

"Render Times detail report"
Client-side render times reported by UI Capture

"Broken Images detail report" on page 80
Broken image counts reported by UI Capture

"JavaScript Alerts detail report" on page 81
Counts of JavaScript alerts generated in the visitor's browser reported by UI Capture

"Browser Dimensions detail report" on page 82
Dimensions of visitor browsers as reported by UI Capture

"Dwell Time detail report" on page 83
Calculated time that is spent on each page, as reported by UI Capture

"Statistics detail report" on page 84
View statistical information that is tabulated through UI Capture

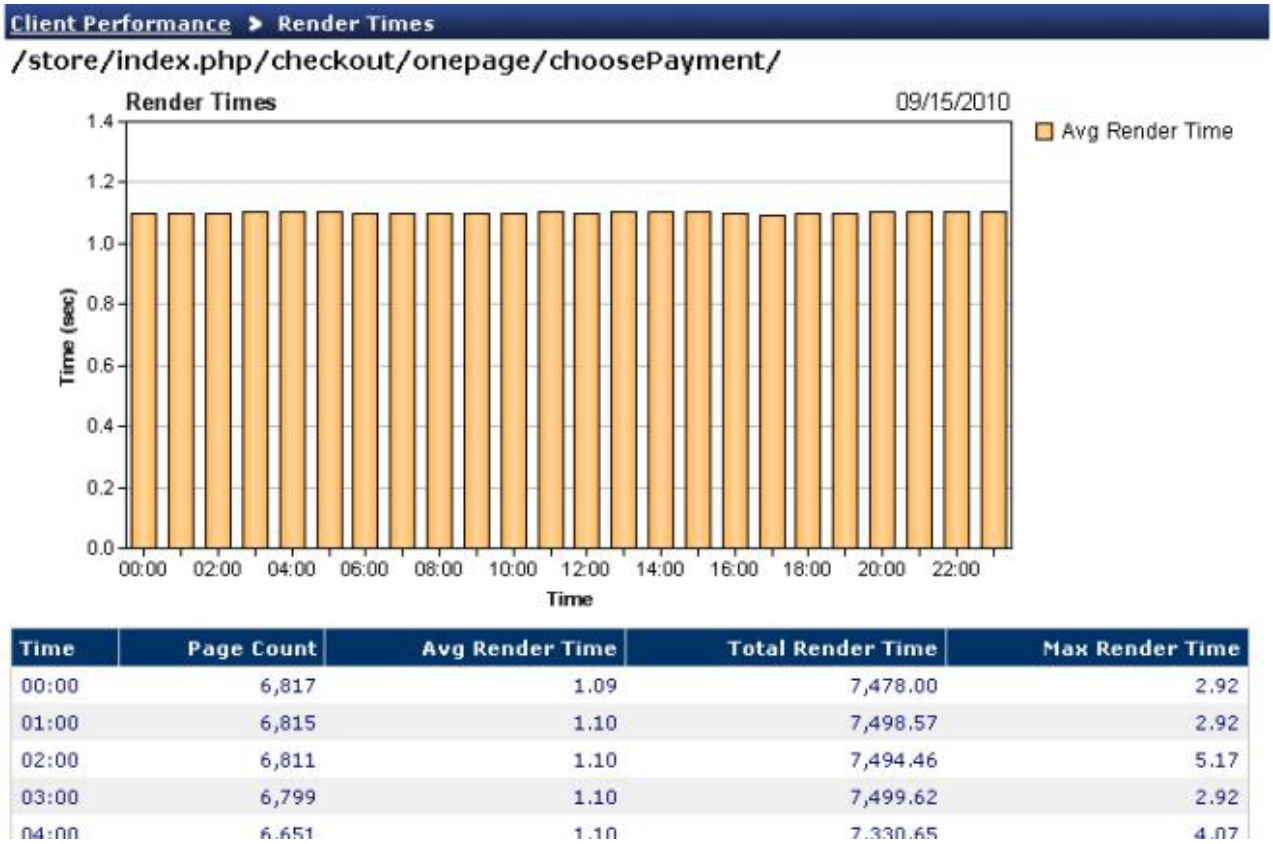
Render Times detail report

Note: To generate accurate render times, you must load Tealeaf's UI Capture library as the first item on the page.

To review render times for a specific page, click the URL in the Client Performance report and then select `Render Times` from the View drop-down.

In the Render Times detail report, you can review a chart and data on breakdowns within the selected focus period for the selected page.

- If the focus period is a single day, the data is broken down by hour.
- If the focus period spans multiple days, the data is broken down into daily categories.



Time	Page Count	Avg Render Time	Total Render Time	Max Render Time
00:00	6,817	1.09	7,478.00	2.92
01:00	6,815	1.10	7,498.57	2.92
02:00	6,811	1.10	7,494.46	5.17
03:00	6,799	1.10	7,499.62	2.92
04:00	6,651	1.10	7,330.65	4.07

Figure 41. UI Capture Report - Render Times

The following fields are displayed in the detail report.

Field Name
Description

Time (Calendar range is one day) Hour represented the data that is tabulated in the row.

Date (Calendar range is multiple dates) Date that is represented by the data that is tabulated in the row.

Hit Count
Number of instances of the selected hit that was served during the period.

Avg Render Time
Average render time in seconds for the page during the period

Total Render Time
Total render time in seconds for the page during the period

Max Render Time
Maximum render time in seconds for the page during the period

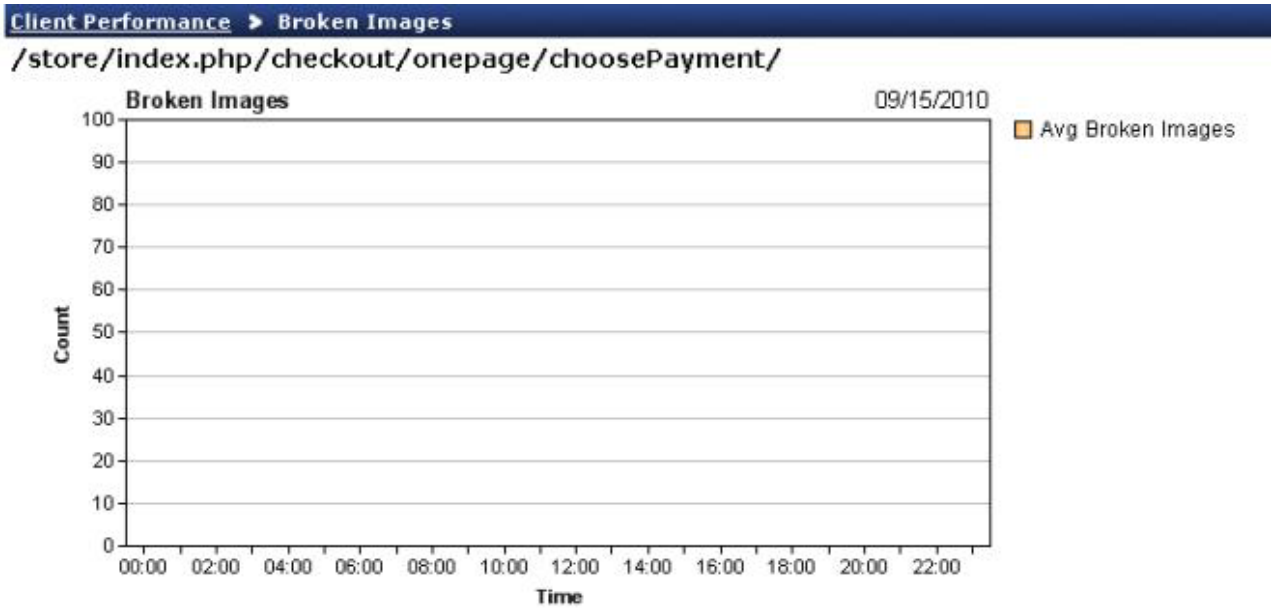
Render time calculations: Depending on your version of UI Capture for j2, the render time is calculated by using the following method:

Table 8. Render time calculations

UI Capture Release	Render Time Value	Explanation
Build 2012.06.01.1 or earlier	Submitted by UI Capture in the following header: `HTTP_X_TEALEAF_RENDER _TIME`	When the UI Capture is loaded on the page, the time in milliseconds is recorded (`TeaLeaf.tlStartLoad`). When the page finishes rendering and the DOM-ready state is complete, the time is recorded. The difference between the load time that is collected at the beginning and the time that collected when the DOM state is complete equals the time that is required to render the page.
Any build after Build 2012.06.01.1	Submitted by UI Capture in the following JSON node: `<message>.performance .timing.renderTime`	The W3C Navigation Timing object is used and is supported by newer browsers to calculate the render time. Render time is calculated as the difference between the `responseEnd` and `loadEventStart` markers. **Note:** NUIC does not report the render time for legacy browsers that do not support the navigation timing object. See http://www.w3.org/TR/navigation-timing/#sec-navigation-timing-interface.

Broken Images detail report

To review the counts of broken images for a specific page, click the URL in the Client Performance report and then select `Broken Images` from the View drop-down.



Time	Page Count	Avg Broken Image Count	Total Broken Image Count	Max Broken Image Count
00:00	6,817	0.00	0	0
01:00	6,815	0.00	0	0
02:00	6,811	0.00	0	0
03:00	6,799	0.00	0	0
04:00	6,651	0.00	0	0

Figure 42. UI Capture Report - Broken Images

Field **Description**

Time (Calendar range is one day) Hour represented the data that is tabulated in the row.

Date (Calendar range is multiple dates) Date that is represented by the data that is tabulated in the row.

Hit Count
Number of hits on the page during the period

Avg Broken Image Count
Average count of broken images for the page during the period

Total Broken Image Count
Total count of broken images for the page during the period

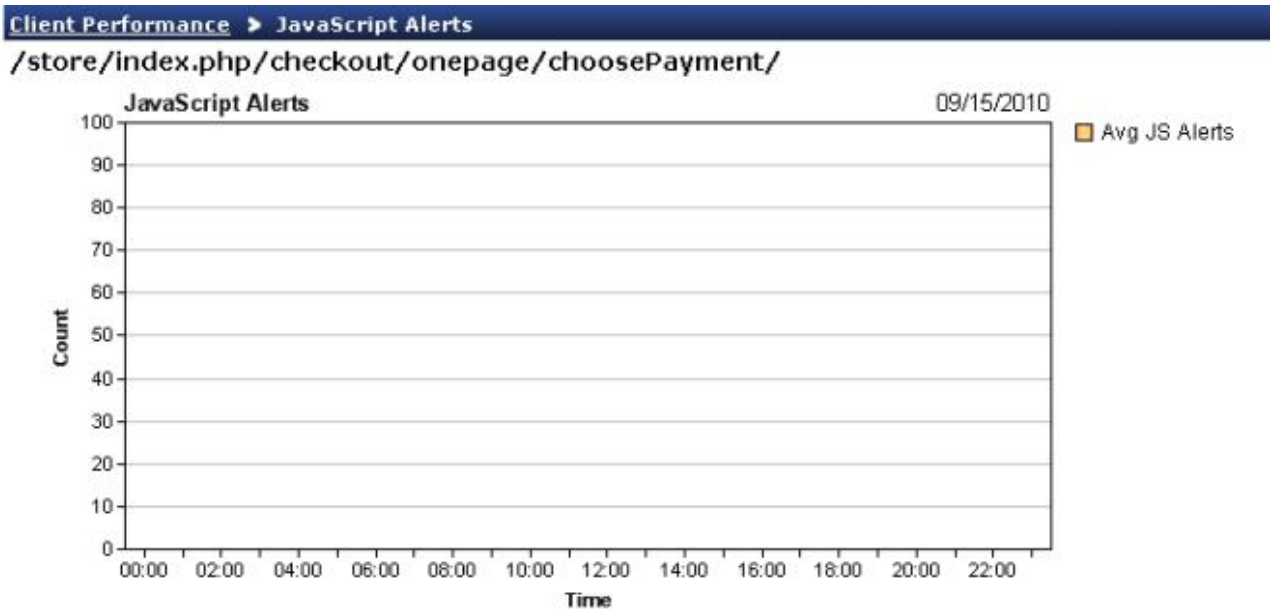
Max Broken Image Count
Maximum count of broken images for the page during the period

JavaScript Alerts detail report

To review the counts of JavaScript alerts generated on a specific page, click the URL in the Client Performance report and then select `JavaScript Alerts` from the View drop-down.

- To enable capture of the data that is required for this report, the `tlCatchAlerts` flag must be enabled in UI Capture for Ajax. See "TeaLeafEventCfg.js" in the *IBM Tealeaf UI Capture for Ajax Guide*.

Note: The API calls required to support this report are not available for Internet Explorer and Safari browsers. This report produces data for the Mozilla (Firefox) and Chrome families of browsers.



Time	Page Count	Avg JS Alert Count	Total JS Alert Count	Max JS Alert Count
00:00	6,817	0.00	0	0
01:00	6,815	0.00	0	0
02:00	6,811	0.00	0	0
03:00	6,799	0.00	0	0
04:00	6,651	0.00	0	0

Figure 43. UI Capture Report- JavaScript Alerts

Field	Description
Time	(Calendar range is one day) Hour represented the data that is tabulated in the row.
Date	(Calendar range is multiple dates) Date that is represented by the data that is tabulated in the row.

Hit Count
Number of hits on the page during the period

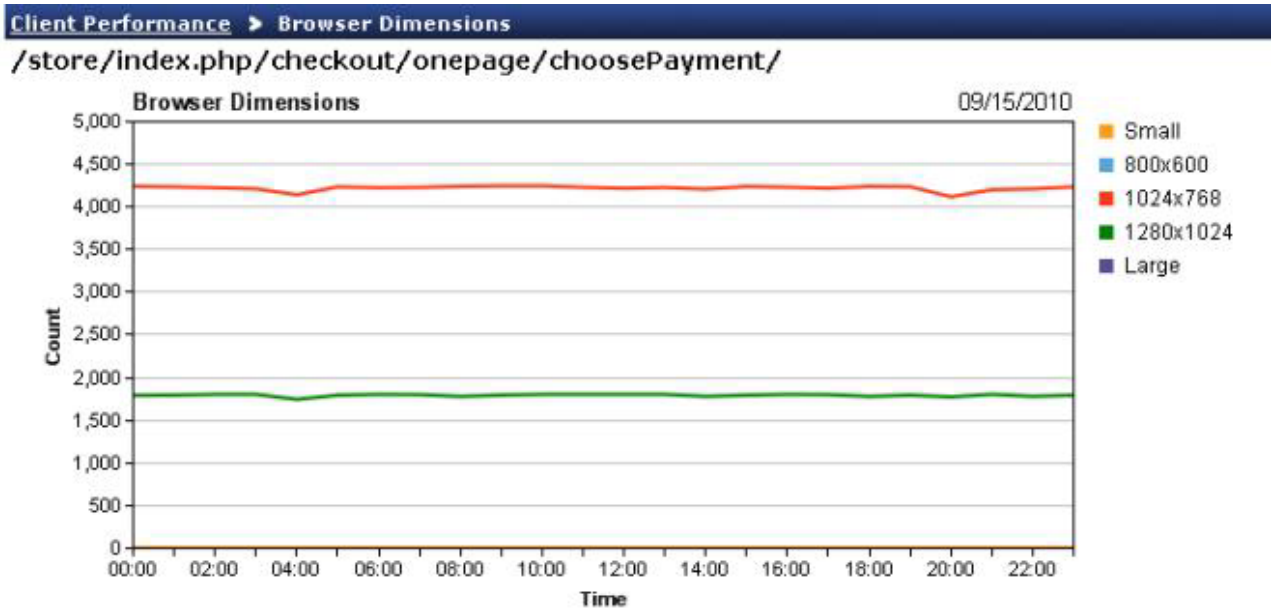
Avg JS Alert Count
Average count of JavaScript alerts for the page during the period

Total JS Alert Count
Total count of JavaScript alerts for the page during the period

Max JS Alert Count
Maximum count of JavaScript alerts for the page during the period

Browser Dimensions detail report

To review dimensions of browsers that are used to access a specific page, click the URL in the Client Performance report and then select `Browser Dimensions` from the View drop-down.



Time	Page Count	Small	800x600	1024x768	1280x1024	Large
00:00	6,817	0	0	4,232	1,782	0
01:00	6,815	0	0	4,226	1,785	0
02:00	6,811	0	0	4,215	1,794	0
03:00	6,799	0	0	4,203	1,794	0
04:00	6,651	0	0	4,134	1,735	0

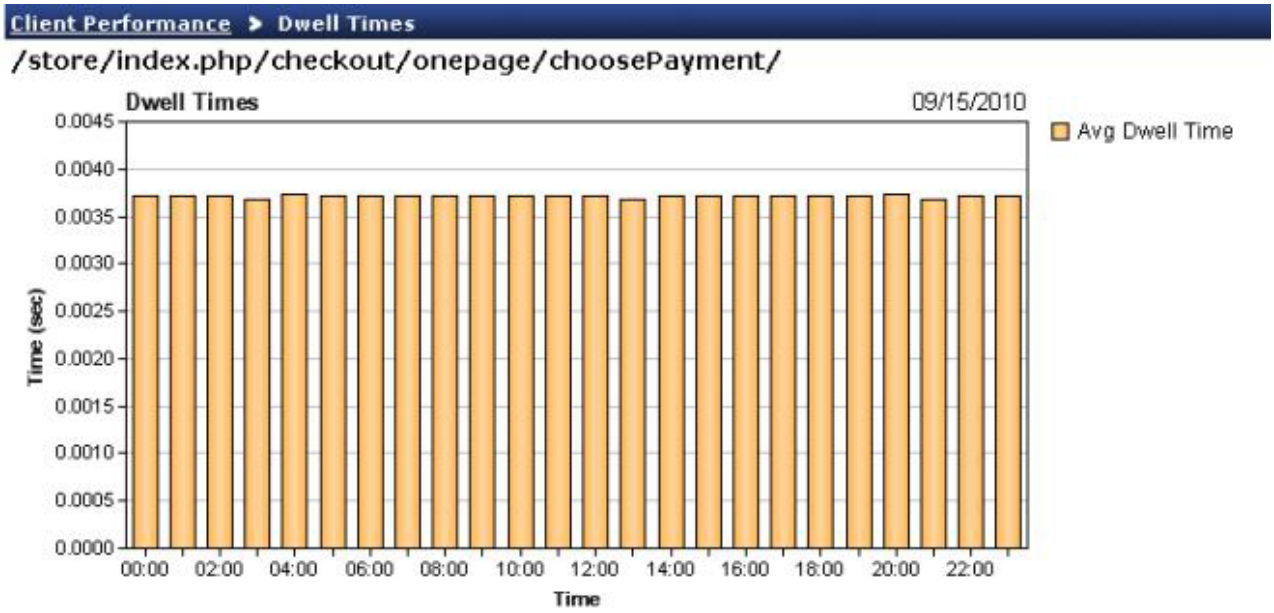
Figure 44. UI Capture Report - Browser Dimensions

Field	Description
Time	(Calendar range is one day) Hour represented the data that is tabulated in the row.
Date	(Calendar range is multiple dates) Date that is represented by the data that is tabulated in the row.
Hit Count	Number of hits on the page during the period
Small	Count of page views whose browser dimensions were smaller than 800 x 600
800x600	Count of page views whose browser dimensions were 800 x 600
1024x768	Count of page views whose browser dimensions were 1024 x 768
1280x1024	Count of page views whose browser dimensions were 1280 x 1024
Large	Count of page views whose browser dimensions were larger than 1280 x 1024

Dwell Time detail report

To review dwell times for a specific page, click the URL in the Client Performance report and then select `Dwell Times` from the View drop-down.

Note: The TealeafTarget page must not be whitelisted as an accepted URL for the URL dimension of the URL, Host, App, Server report group. See "URL/Host/App/Server Report Group" in the *IBM Tealeaf Event Manager Manual*.



Time	Page Count	Avg Dwell Time	Total Dwell Time	Max Dwell Time
00:00	6,817	0.00	25.28	0.25
01:00	6,815	0.00	25.34	0.25
02:00	6,811	0.00	25.27	0.25
03:00	6,799	0.00	24.97	0.25
04:00	6,651	0.00	24.88	0.25

Figure 45. UI Capture Report - Dwell Times

Field **Description**

Time (Calendar range is one day) Hour represented by the data that is tabulated in the row.

Date (Calendar range is multiple dates) Date that is represented by the data that is tabulated in the row.

Hit Count
Number of hits on the page during the period

Avg Dwell Time
Average dwell time in seconds for the page during the period

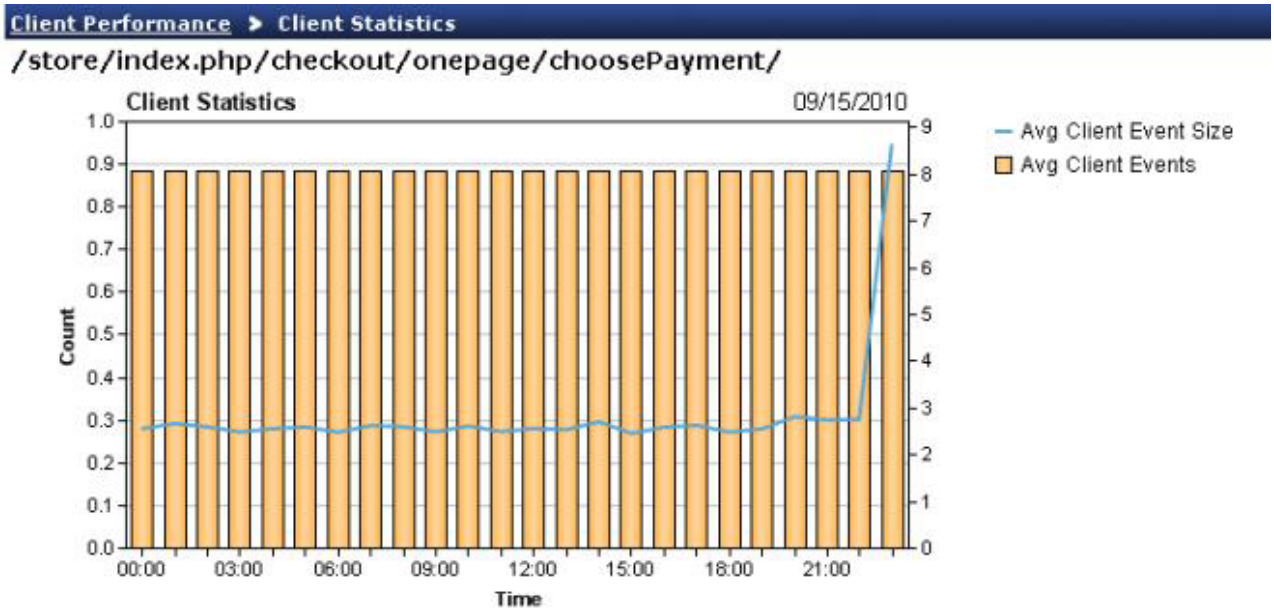
Total Dwell Time
Total dwell time in seconds for the page during the period

Max Dwell Time
Maximum dwell time in seconds for the page during the period

Statistics detail report

To review client-side statistics for a specific page, click the URL in the Client Performance report and then select `Statistics` from the View drop-down.

Statistics such as the average size of the UI Capture XML (Client Event Size) and Client Events (the number of client events) are tabulated in the report.



Time	Page Count	Avg Event Count	Total Event Count	Avg Bytes	Total Bytes
00:00	6,817	0.88	6,014	2.54	17,325
01:00	6,815	0.88	6,011	2.64	18,059
02:00	6,811	0.88	6,009	2.57	17,559
03:00	6,799	0.88	5,997	2.47	16,806
04:00	6,651	0.88	5,869	2.54	16,902

Figure 46. UI Capture Report - Statistics

Field	Description
Time	(Calendar range is one day) Hour represented by the data that is tabulated in the row.
Date	(Calendar range is multiple dates) Date that is represented by the data that is tabulated in the row.

Hit Count
Number of hits on the page during the period

Avg Event Count
Average count of events on the page during the period

Total Event Count
Total count of events on the page during the period

Avg Bytes
Average number of bytes for the page during the period

Total Bytes
Total number of bytes for the page during the period

Connections Report

For the selected page or pages, the connection type of its visitors and canceled status are displayed in the table.

- By default, the detail table is sorted in descending order by the Hit Count.
- Click a column header to sort the detail table. Click it again to reverse the sort order.

Field Name
Description

URL The URL to which the row of detail applies.
- You can click any URL to see a detail report specific to the selected path. See "Connection Types Detail Report" on page 87.

Hit Count
The number of hits that are served for the specified focus period.

T1 Number of page requests during the focus period that were run at T1 connection speed. See "Report Computations."

DSL/Cable
Number of page requests during the focus period that were run at DSL/Cable connection speed. See "Report Computations."

ISDN Number of page requests during the focus period that were run at ISDN connection speed. See "Report Computations."

Dial-up
Number of page requests during the focus period that were run at dial-up connection speed. See "Report Computations."

Unknown
Number of page requests during the focus period that were unable to be evaluated. See "Report Computations."

Cancelled Client
Number of page requests during the focus period that were canceled by the client.

Cancelled Server
Number of page requests during the focus period that were terminated by the server.

Report Computations

The following describes the computed connection speed:

```
ConnectionSpeed = avg ResponseSize / avg ResponseTime
```

where:

```
ResponseSize = ResponseHeaderSize + ResponseBodySize
ResponseTime = TimeLastResponsePacketAcknowledged - TimeOfFirstResponsePacket
```

- Connection Speed is calculated as the average values of all hits in the session. Any detected client user interface events are ignored.

Based on the computed Connection Speed, the Connection Types are derived by using the following thresholds:

- If speed < 57,344 bytes/sec (56 KB/sec), then Connection Speed = `Dial Up`.
- If speed < 131,072 bytes/sec (128 KB/sec), then Connection Speed = `ISDN`.

- If speed < 716,800 bytes/sec (700 KB/sec), then Connection Speed = DSL.
- Else Connection Speed = T1 (>=1544 KB/sec).

If the data is not available to compute Connection Speed, the Connection Type is designated as Unknown.

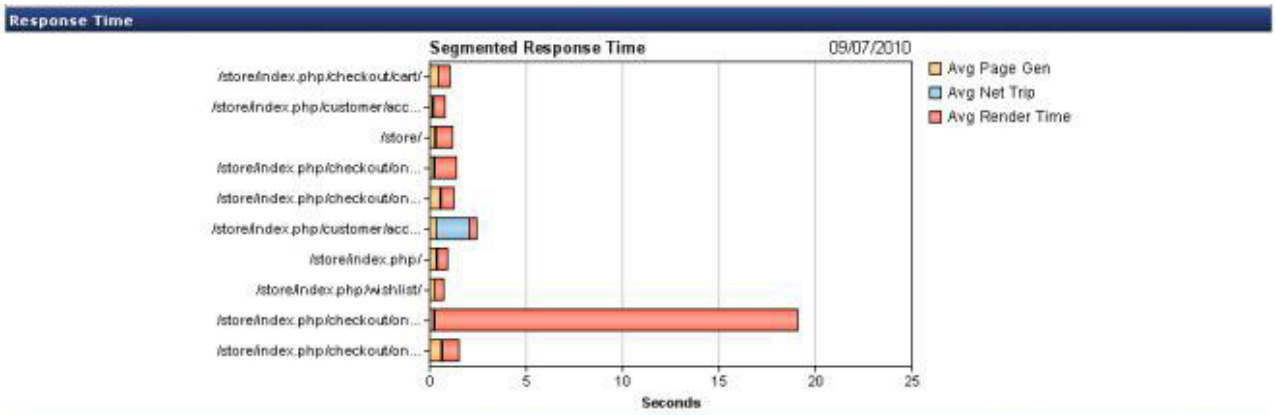
Connection Types Detail Report

In this report, you can review the response times for the selected URL, broken down by time period. See "Response Time Detail Report."

Response Time Report

This report shows the segmented response times for page generation, network trip, and render times during the focus period for the displayed pages.

- By default, the detail table is sorted in descending order by the Hit Count.
- Click a column header to sort the detail table. Click it again to reverse the sort order.



URL	Page Count	Avg Size (KB)	Avg Round Trip	Avg Net Trip	Avg Page Gen	Avg Render Time	Max Round Trip	Max Net Trip	Max Page Gen	Max Render Time
/store/index.php/checkout/cart/	164,922	13,626.72	0.46	0.02	0.43	0.59	99.09	4.65	95.63	4.65
/store/index.php/customer/account/login/	107,377	5,430.49	0.21	0.07	0.13	0.57	28.70	17.42	19.10	8.92
/store/	90,986	9,558.95	0.34	0.11	0.23	0.81	41.06	23.43	30.79	19.67
/store/index.php/checkout/onepage/choosePayment/	61,526	9,361.87	0.26	0.04	0.22	1.09	21.78	4.35	20.67	5.43
/store/index.php/checkout/onepage/	52,877	21,280.45	0.56	0.03	0.53	0.71	44.89	2.36	42.76	5.09
/store/index.php/customer/account/	47,720	10,868.63	2.04	1.68	0.35	0.41	238.11	227.29	21.42	2.20

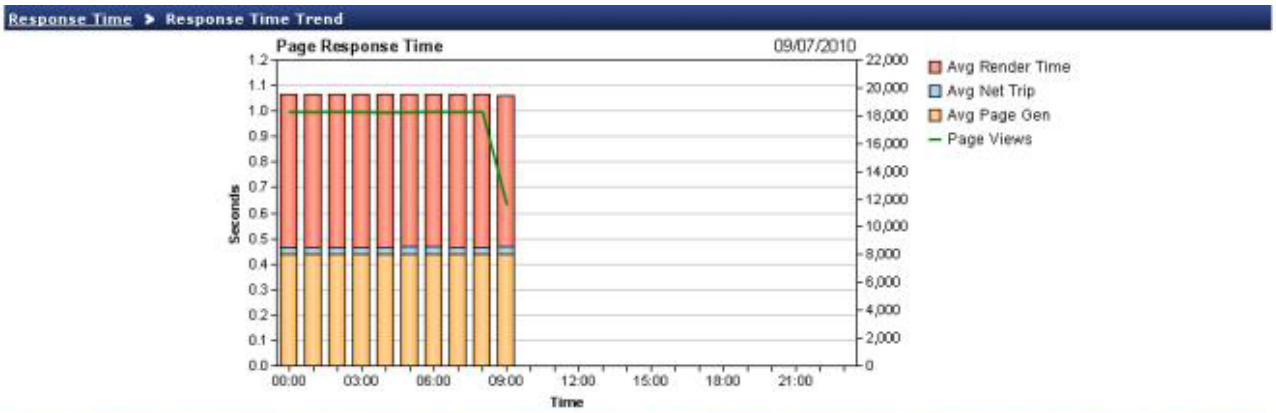
Figure 47. Response Time report

To see a detail report for an individual URL, click the URL link. See "Response Time Detail Report."

Response Time Detail Report

In this report, you can review the response times for the selected page, which is displayed by network transit, server generation, and render time values for the selected page.

- Page views are super-imposed by using the green line.



Time	Page Count	Avg Size (KB)	Avg Round Trip	Avg Net Trip	Avg Page Gen	Avg Render Time	Max Round Trip	Max Net Trip	Max Page Gen	Max Render Time
00:00	18,228	13,634.00	0.46	0.02	0.43	0.60	89.52	4.23	86.60	3.76
01:00	18,210	13,629.46	0.46	0.02	0.43	0.60	95.06	4.42	91.53	4.50
02:00	18,231	13,620.47	0.46	0.02	0.43	0.60	82.10	4.52	79.80	3.90
03:00	18,211	13,620.47	0.46	0.02	0.43	0.59	87.18	4.26	84.83	3.57
04:00	18,180	13,618.56	0.46	0.02	0.43	0.59	86.16	4.16	83.44	4.65
05:00	18,201	13,638.37	0.46	0.02	0.43	0.60	98.33	4.27	95.63	4.57

Figure 48. Response Time - detail

In the table below the chart, you can review statistics for the page during each of the displayed time periods within the focus period. See "Connection Types Detail Report" on page 87.

In the report, average render time, average network trip, and average page generation statistics are displayed as a stacked chart, which provides a graphical cross-section of browser performance, network performance, and web server performance, respectively.

- The super-imposed line graph indicates the trend in page views over the focus period.

In the table below the chart, you can review the following statistics for the page during each of the displayed time periods within the focus period:

Field Name
Description

Date/Time
If the focus period is larger than a single day, break-downs are provided for each date. If the focus period is a single day, break-downs are for each hour of the selected date.

Hit Count
The number of hits that are served for the specified focus period.

Avg Size (KB)
Average size in KB of each instance of the page that is generated during the time period.

Avg Round Trip
Average round trip time in seconds between sending the request and receiving the last packet of the response. See "Terms and Definitions" on page 89.

Avg Net Trip
Average time across the network in seconds. See "Terms and Definitions" on page 89.

Avg Page Gen
Average time in seconds to generate a page.

Avg Render Time
Average time in seconds to render the page in the visitor's browser.

Max Round Trip
Maximum round trip time in seconds between sending the request and receiving the last packet of the response. See “Terms and Definitions.”

Max Net Trip
Maximum time across the network in seconds. See “Terms and Definitions.”

Max Page Gen
Maximum time in seconds to generate a page.

Max Render Time
Maximum time in seconds to render the page in the visitor's browser.

Terms and Definitions

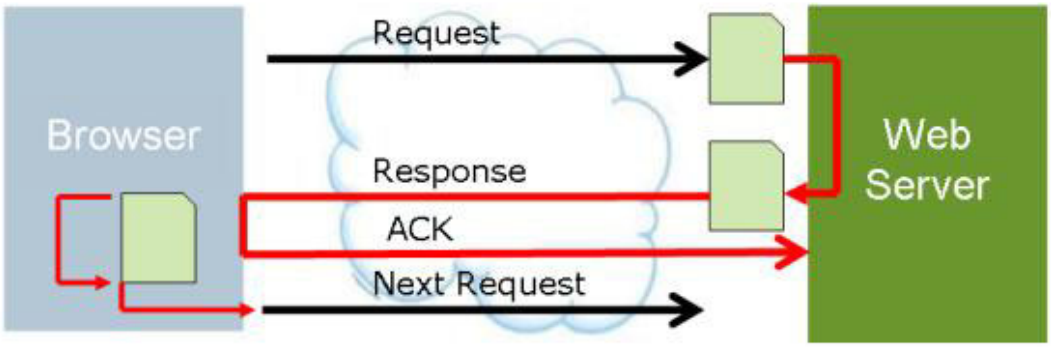


Figure 49. Summary

Tealeaf gathers performance data from the first time the web server receives a request until it receives the next request for a new page or an Ajax call. This performance data provides a critical view into the entire chain of communication between a browser and a server.

- For more detailed information about these terms, see "Performance Measurement" in the *IBM Tealeaf Passive Capture Application Manual*.

Page Generation Time

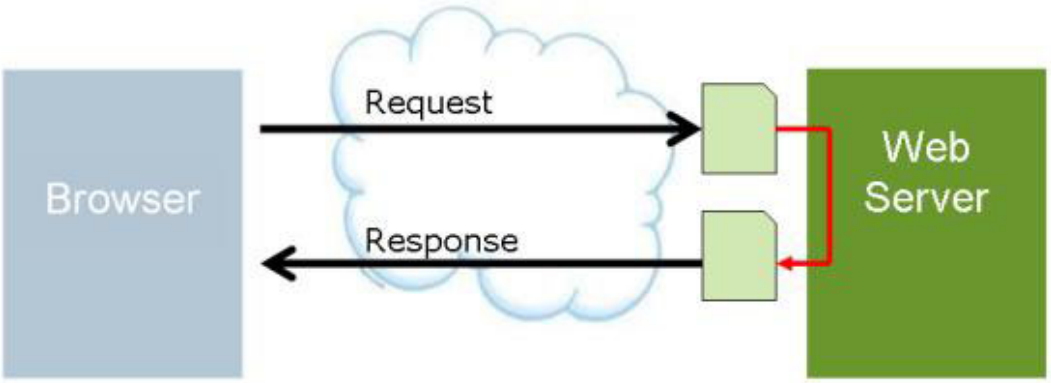


Figure 50. Page Generation Time

Page Generation Time indicates web server performance. Spikes or high numbers indicate web server slowdowns.

The time that it takes to begin sending the page to the browser from the last request packet to the beginning of the response.

Network Time

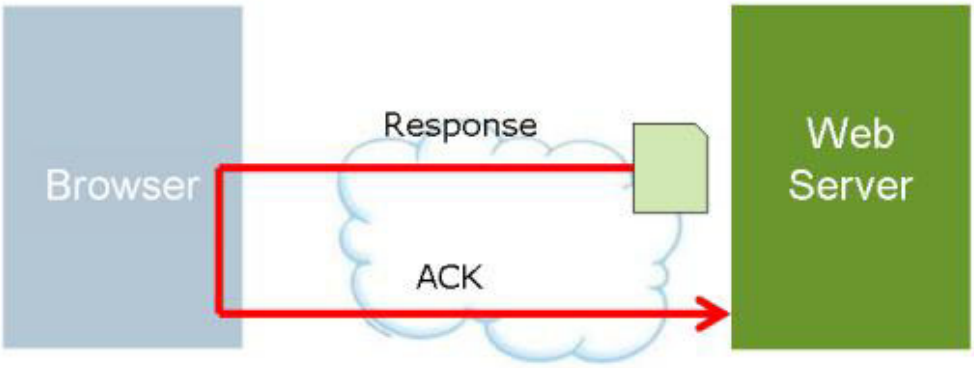


Figure 51. Network Time

Network Time measures the time on the network to the browser. High times indicate slow networks or browsers.

The time to send the Response HTML to the browser until the moment when the browser sends the acknowledge back.

Round Trip Time

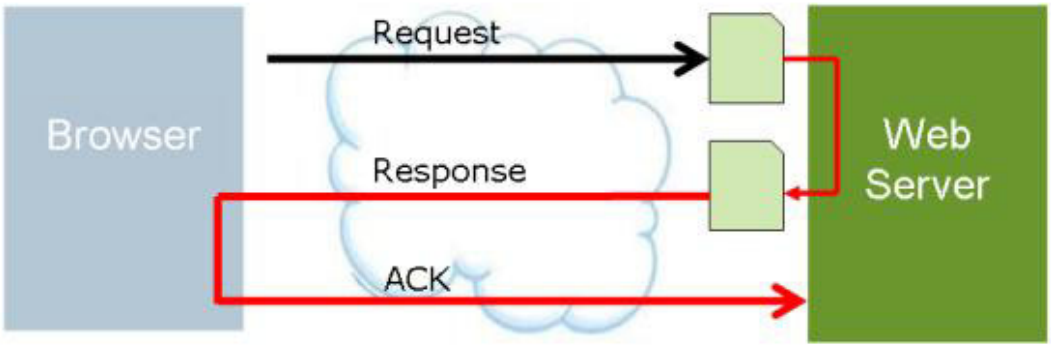


Figure 52. Round Trip Time

Round Trip indicates connection performance. Spikes or High numbers indicate slow connections.

The time between the server receiving request until receiving acknowledgement from browser: Round Trip Time = Page Generation Time + Network Time

Page Render Time

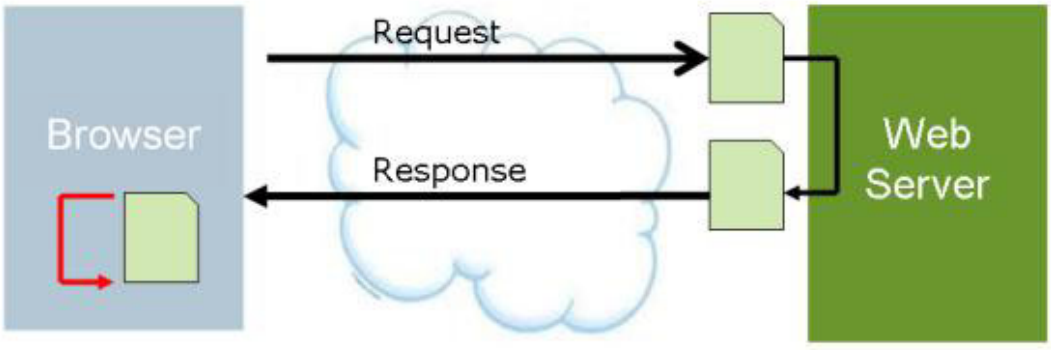


Figure 53. Page Render Time

Page Render Time can indicate browser issues. High numbers indicate slowdowns

The time that it takes from when processing of the response begins until execution of the `document.onload()` function in the browser.

- If UI Capture is deployed, page render time is measured from the moment after UI Capture loads until the DOM-ready state is complete. See "Render Times detail report" on page 78.

Page Dwell Time

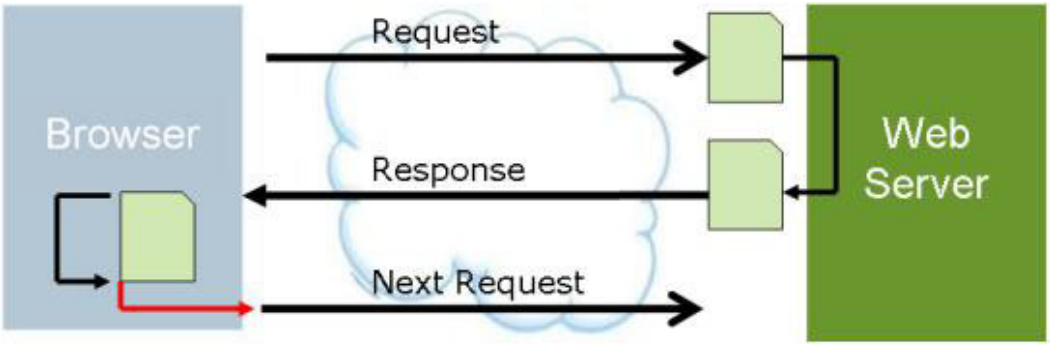


Figure 54. Page Dwell Time

Page Dwell Time indicates how long the visitor stayed on the page. High numbers indicate that the visitor took a long time on this page and perhaps abandoned the site.

The time that it takes from the start of Page Render Time until the execution of `document.unload()` function.

Export

To export a report, click the **Export** icon in the toolbar.

- Excel - Export report data to an Excel worksheet in XML format.
- PDF - Exports the report in PDF format.
- Email - Email the report as an attachment.

References

- For more information about time grading in general, see "Performance Measurement" in the *IBM Tealeaf Passive Capture Application Manual*.
- For more information about the reporting of time grades, see Chapter 3, “Tealeaf Report Builder,” on page 105.
- For more information about configuring time grading, see "Time Grading" in the *IBM Tealeaf Passive Capture Application Manual*.

Technical Site Metrics Dashboard

Through the Portal, you can monitor activities and processing in your Tealeaf system. Through a single dashboard, you can keep tabs on overall activities, page and session metrics, page generation and network round trip times, and counts of visitors and sessions.

The Technical Site Metrics dashboard provides high-level insight into the current activities on the web application that is monitored by Tealeaf.

- To see the Technical Site Metrics dashboard, select **Dashboard** > **Technical Site Metrics**.

Note: The Technical Site Metrics dashboard is available for all Portal users, regardless of permissions.

Note: This dashboard is available in read-only format to all Tealeaf licensees of the cxImpact product. Configuring the dashboard requires the cxView license. See "Configuring Dashboards" in the *IBM Tealeaf cxView User Manual*.

Dashboard Overview

The Technical Site Metrics dashboard is divided into the following tabs:

1. **"Activity Reports Tab" on page 94:** This tab contains dashboard components that identify key metrics on session data that occurs in the current hour. See "Activity Reports Tab" on page 94.
2. **"Performance Reports Tab" on page 103:** This tab contains dashboard components that indicate page performance metrics for each hour of the current day. See "Performance Reports Tab" on page 103.

Dashboard Component Commands

In the upper-right corner of each component, the following commands are available.

Icon	Command
	Edit the dashboard component. See "Configuring Dashboards" in the *IBM Tealeaf cxView User Manual*.
	View the source report in the Tealeaf Report Builder. See "Viewing Source Reports."
	View the report details of the report. See Chapter 3, "Tealeaf Report Builder," on page 105.
	Refresh the dashboard.

Viewing Source Reports

From the upper-right corner of each dashboard component, you can review the source report.

- To view the source report for a dashboard component, click the **View** ( ) icon. The source report is loaded

Activity reports source

In the Report Builder, you can review the events, dimensions, filters, reporting period, and other configurations that define the Activity report. Search drill-downs on the report data enable searching for the sessions that are aggregated into the report.

Some reports can be loaded directly from the Tealeaf Report Builder. For grouping purposes, the names for reports on each tab begin with a different string identifier:

Tab	Source Report Group
Activity Reports	`Activity Report:`

See “Activity Reports” on page 22. For more information, Chapter 3, “Tealeaf Report Builder,” on page 105.

Performance reports source

Source Performance reports can be viewed through the Tealeaf Portal.

- To view Performance reports, select **Analyze** > **Performance Reports**.
- See “Analyzing Performance” on page 70.

Activity Reports Tab

This information describes how you can monitor activities and processing in your Tealeaf system by using the options available here.

One Hit Session Count

Displays the count of one-hit sessions for the currently selected focus period.

- One-hit sessions can be an indicator of bots and other automated activities. Generally, these sessions are considered uninteresting.

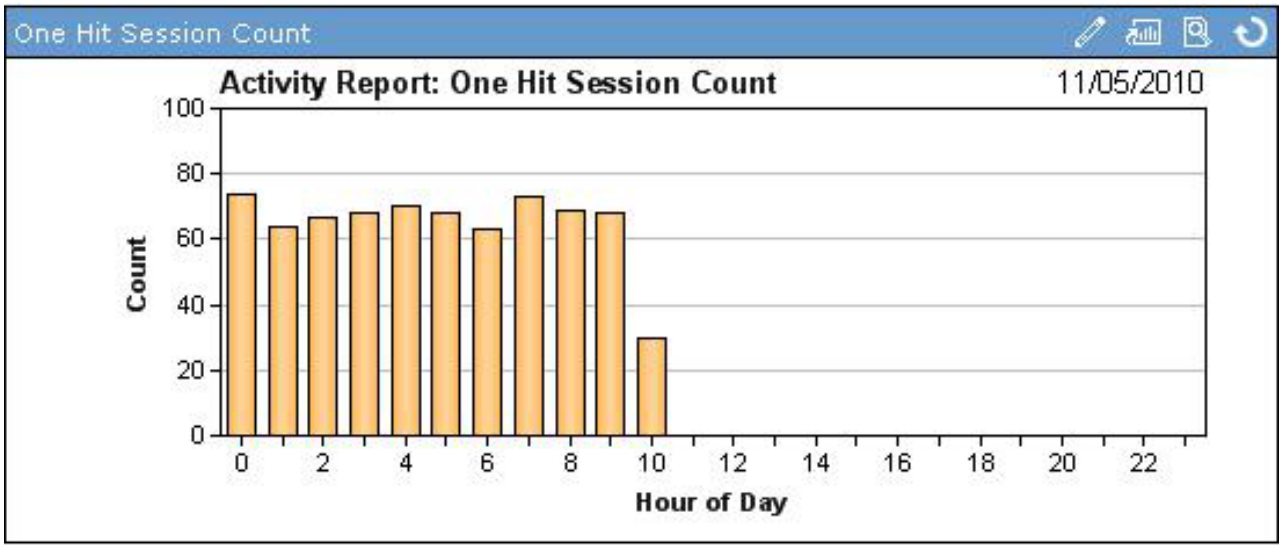


Figure 55. Activity Reports - One Hit Session Count

One Hit Session Ratio

Displays the ratio of one-hit sessions to the total count of sessions for the currently selected focus period.

- One-hit sessions can be an indicator of bots and other automated activities. Generally, these sessions are considered uninteresting.

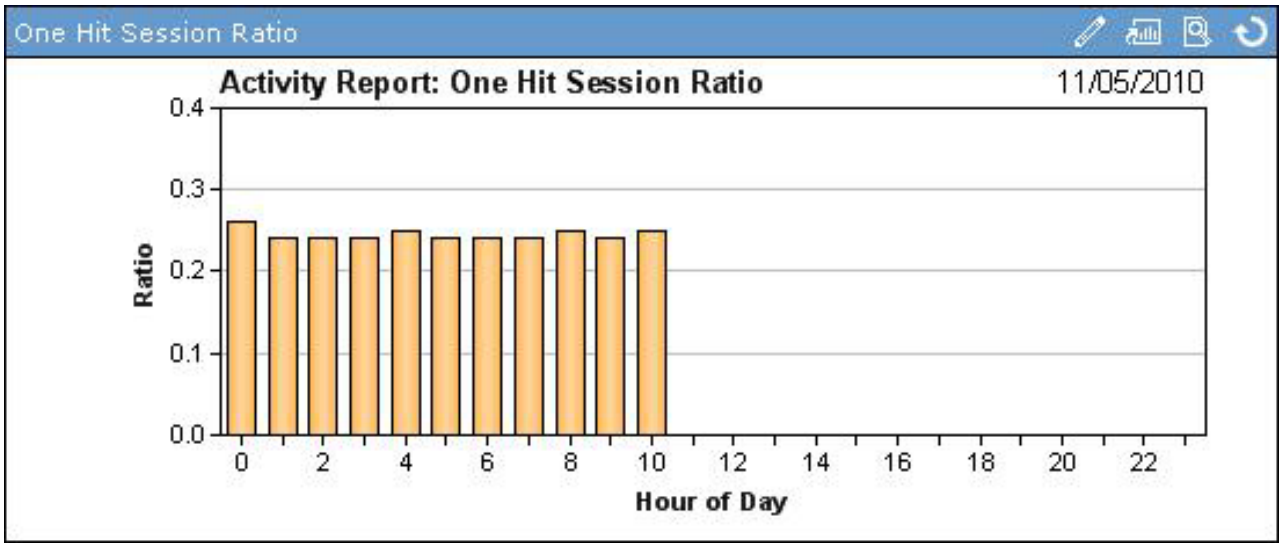


Figure 56. Activity Reports - One Hit Session Ratio

Session Count

Provides a chart of the counts of sessions per hour for the current day.

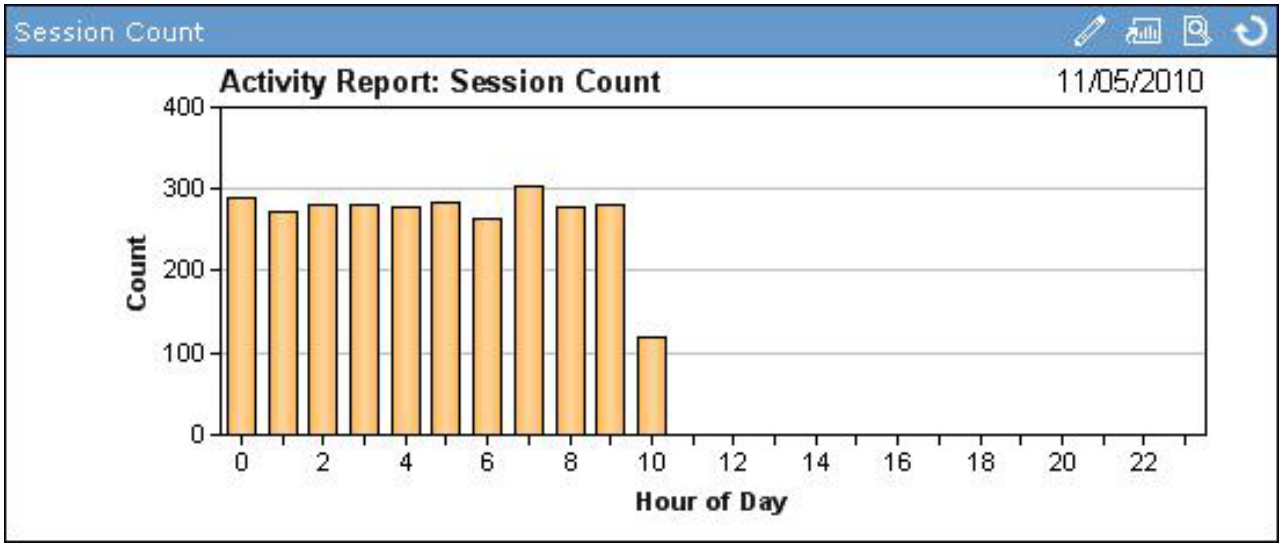


Figure 57. Activity Reports - Session Counts

Hit Count

Provides a chart of the counts of hits that are recorded per hour for the current day.

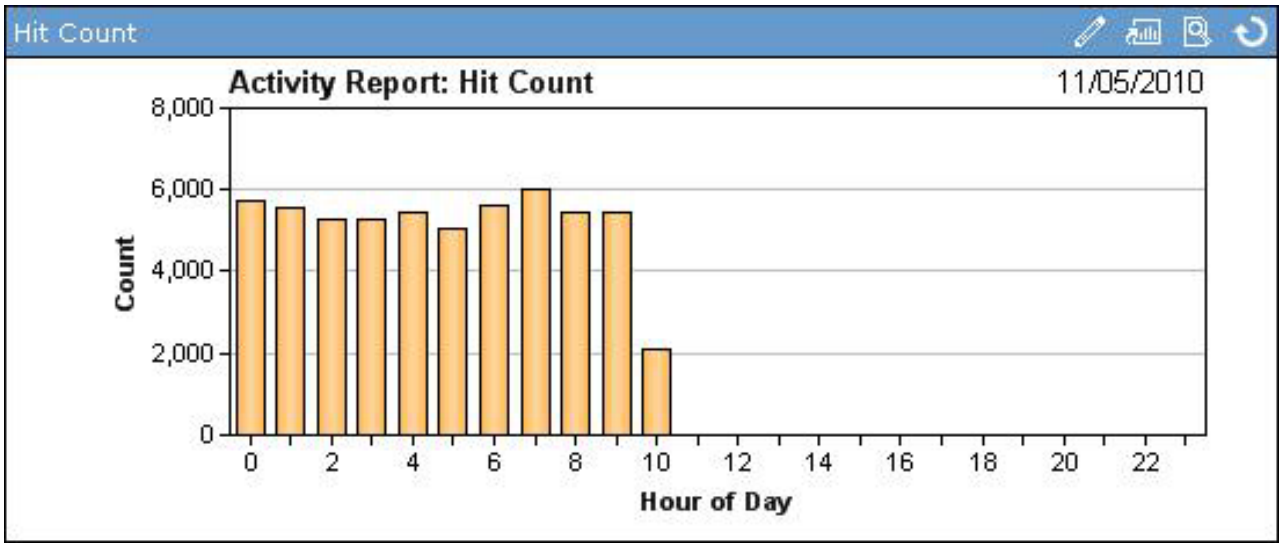


Figure 58. Activity Reports - Hit Counts

Page Count

Provides a chart of the counts of pages that are recorded per hour for the current day.

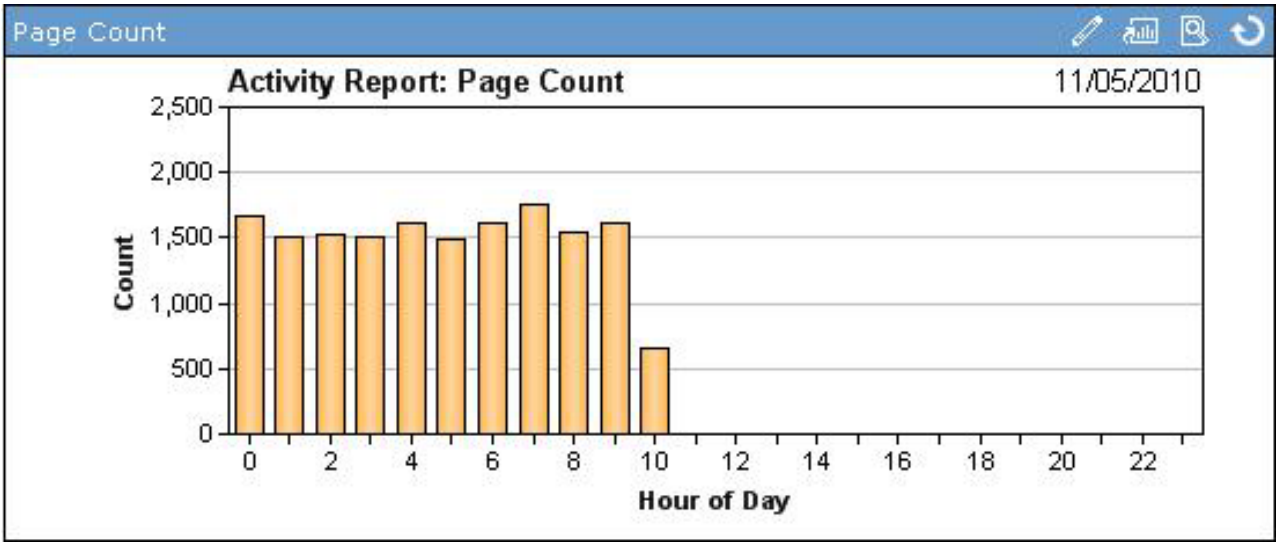


Figure 59. Activity Reports - Page Count

CUI Hit Count

Identifies the number of client user interface events that occurred over each hour of the current day.

- This report requires the installation and deployment of UI Capture. See "UI Capture FAQ" in the *IBM Tealeaf UI Capture for Ajax FAQ*.

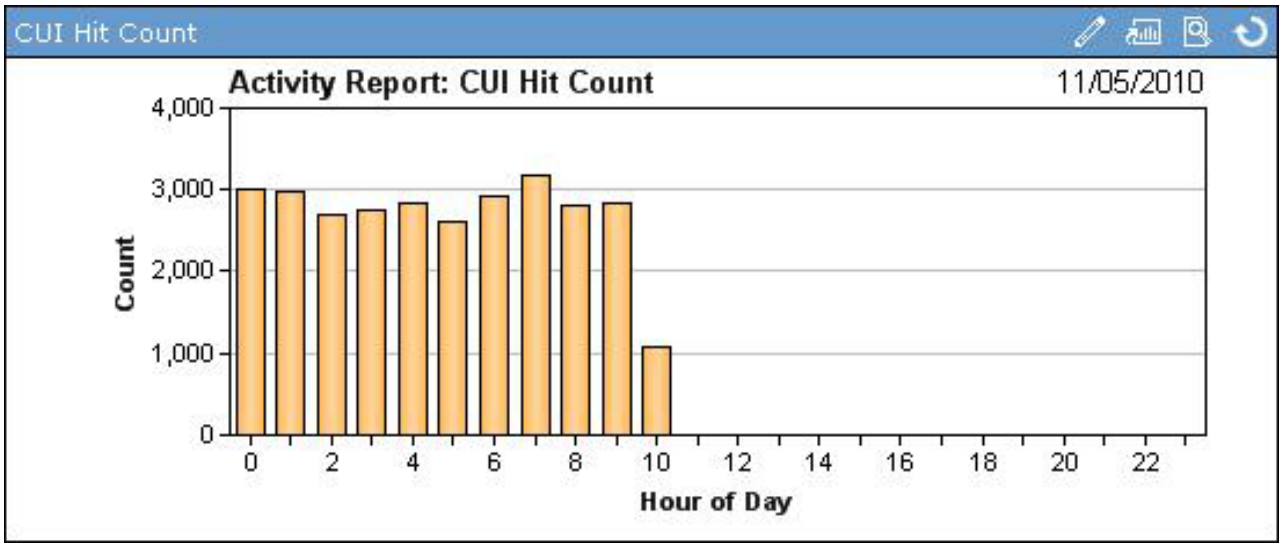


Figure 60. Activity Reports - CUI Hit Counts

Page Generation

Provides a chart of the average and maximum page generation times for the current day.

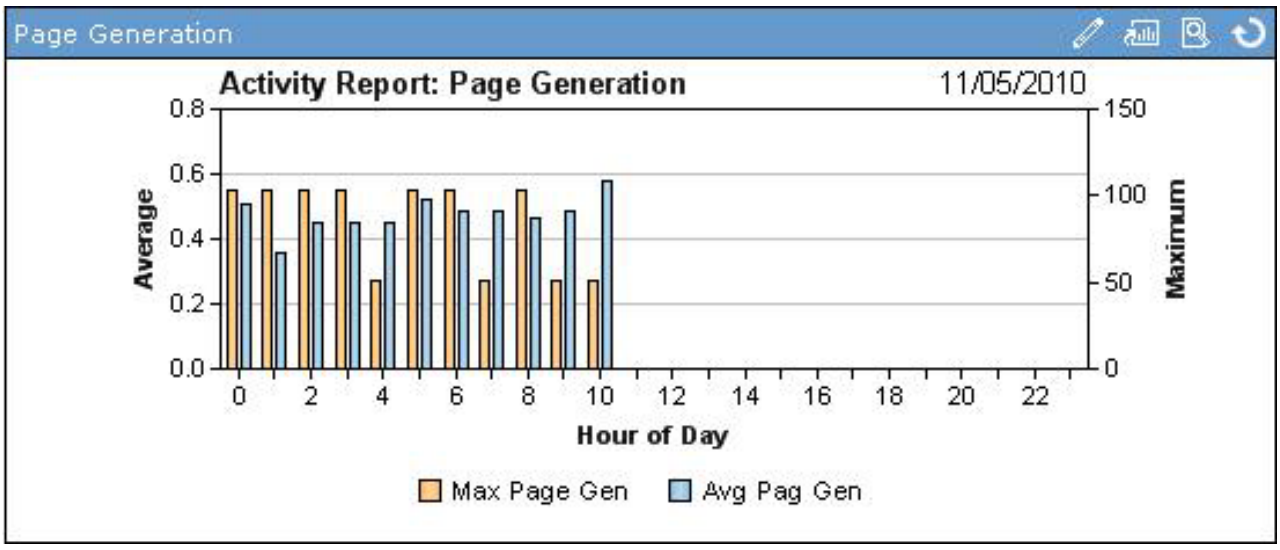


Figure 61. Activity Reports - Page Generation

Page Size

Monitors the average size in KB of pages that are captured during each hour of the current day.

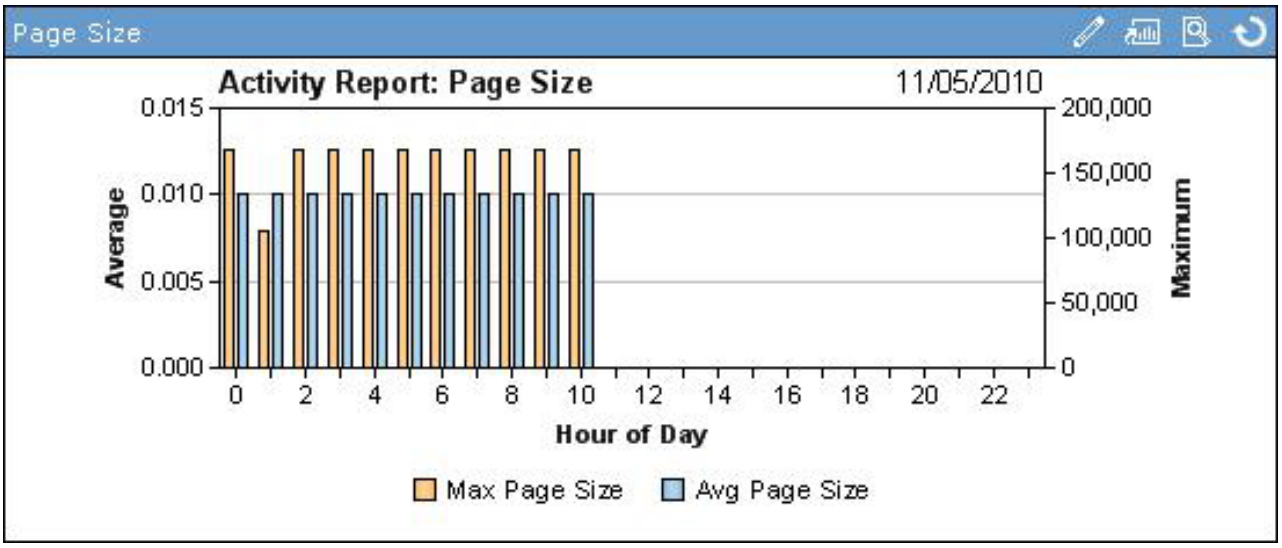


Figure 62. Activity Reports - Page Size

Session Duration

Provides a chart of the average and maximum session duration times for the current day. The report includes the maximum values for the current day.

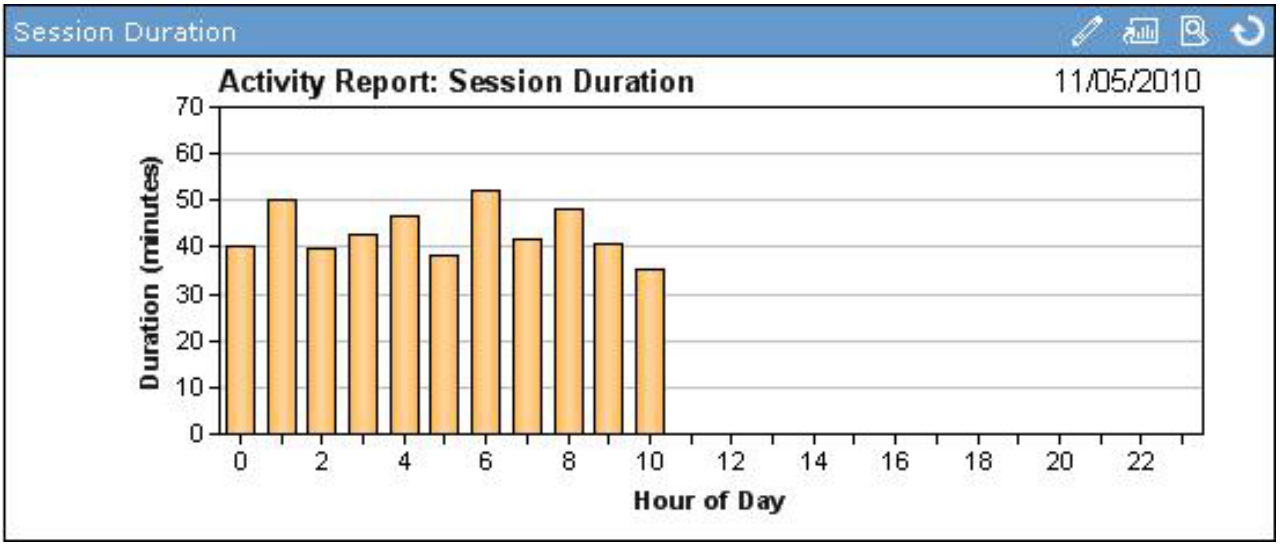


Figure 63. Activity Reports - Session Duration

Session Hits Avg/Max

Displays the average number of hits per session for the current day. The report includes the maximum values for the current day.

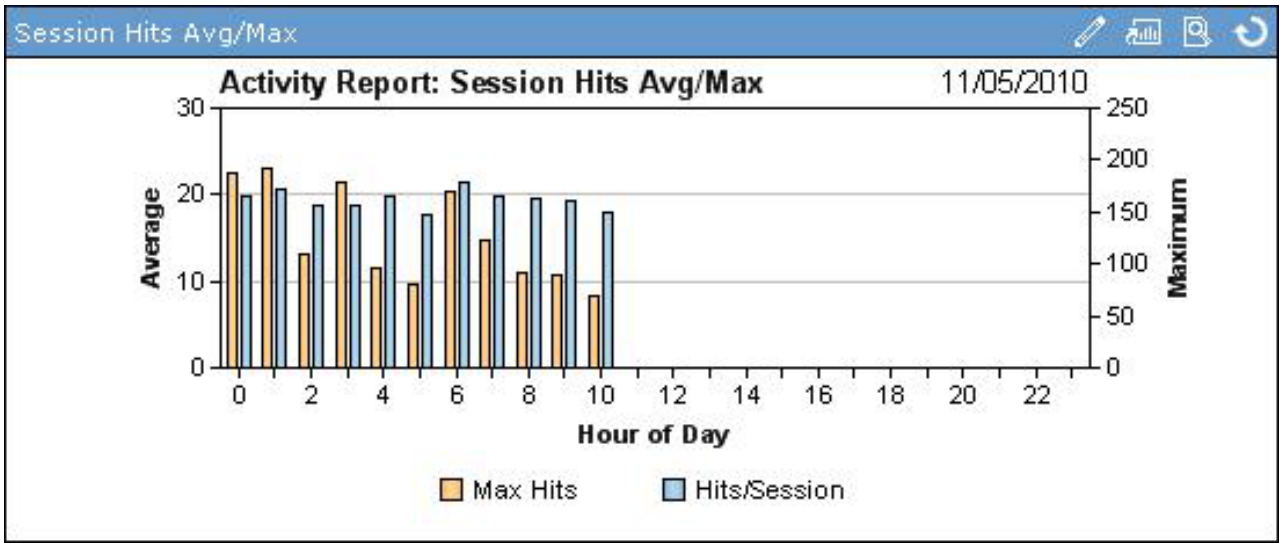


Figure 64. Activity Reports - Session Hits Avg/Max

Session Size Avg/Max

Displays the average size of sessions that occur for the current day. The report includes the maximum values for the current day.

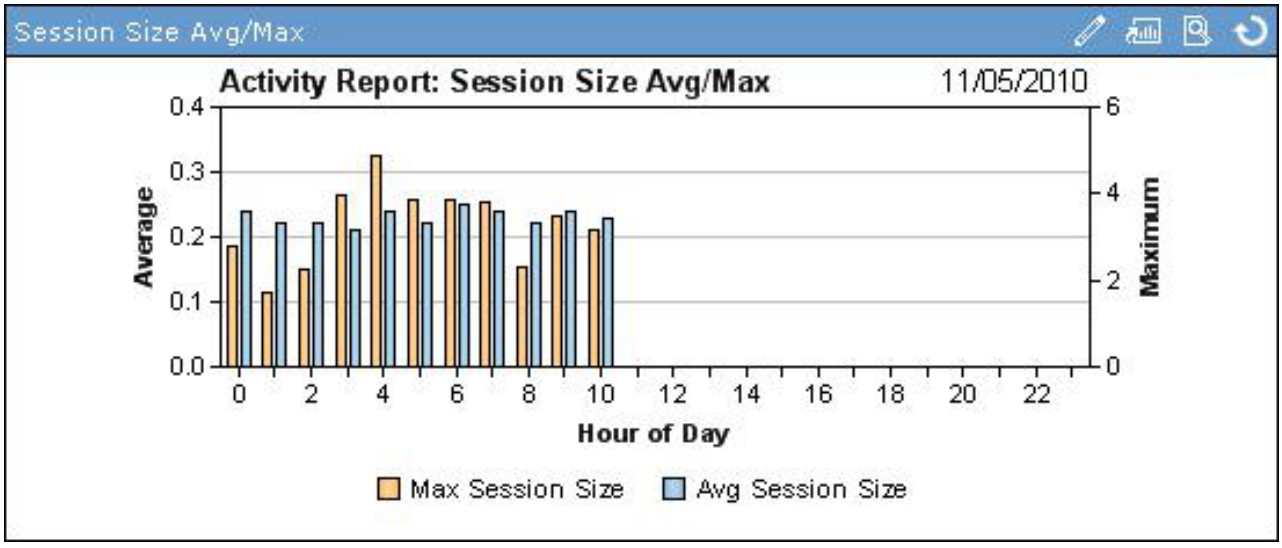


Figure 65. Activity Reports - Session Size Avg/Max

Traffic (MB)

Displays session traffic (megabytes) for the current day. The report includes the totals for request, response, and both data sets for each hour of the current day.

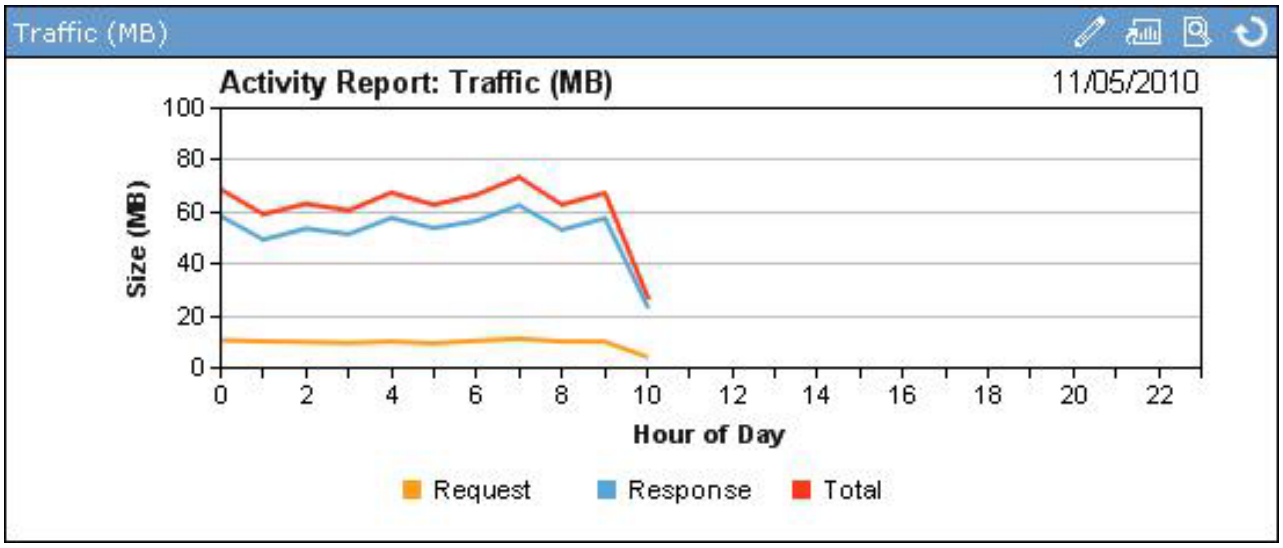


Figure 66. Activity Reports - Traffic (MB)

Round Trip

Displays average and maximum round trip times in seconds for the current day.

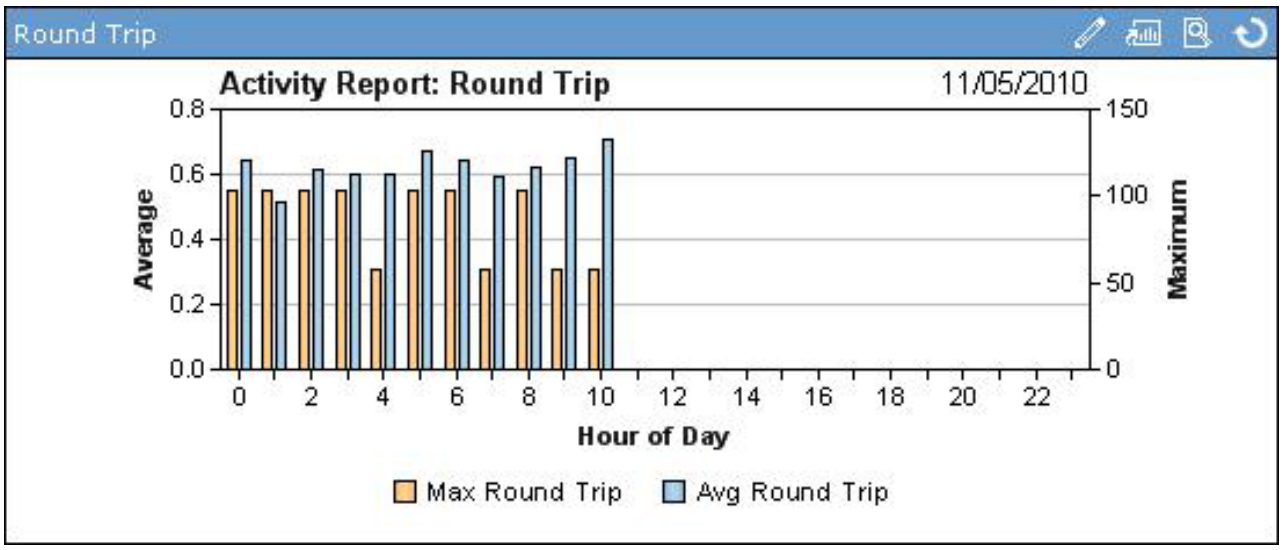


Figure 67. Activity Reports - Round Trip

Network Trip_a

Displays average and maximum network times in seconds for the current day.

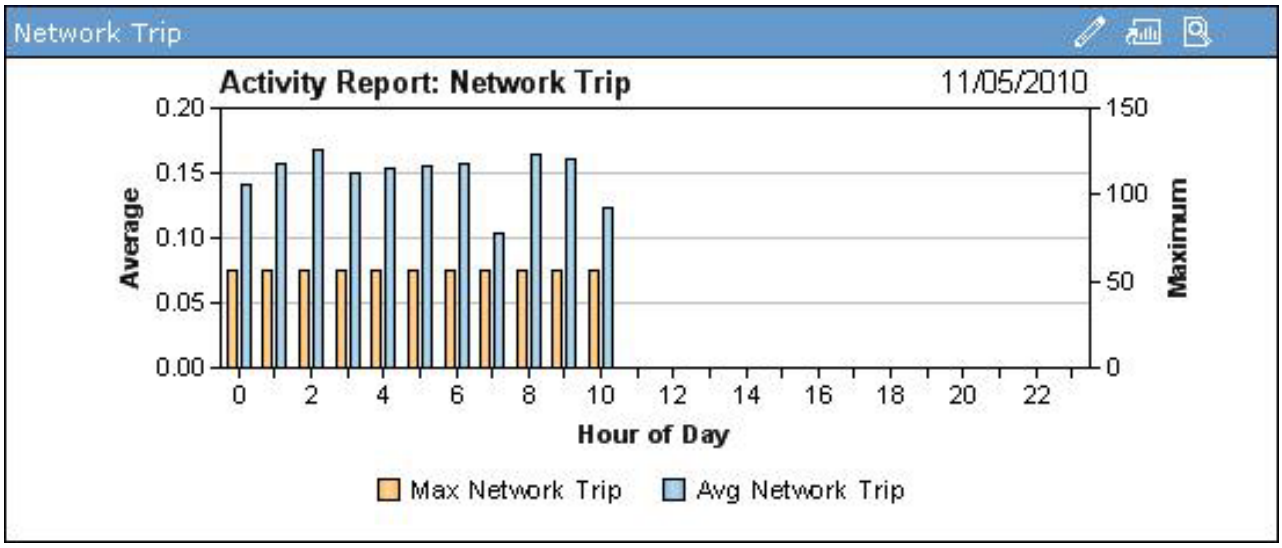


Figure 68. Activity Reports - Network Trip

Req Cancel Count

Displays the client and server page cancel counts by hour for the current day.

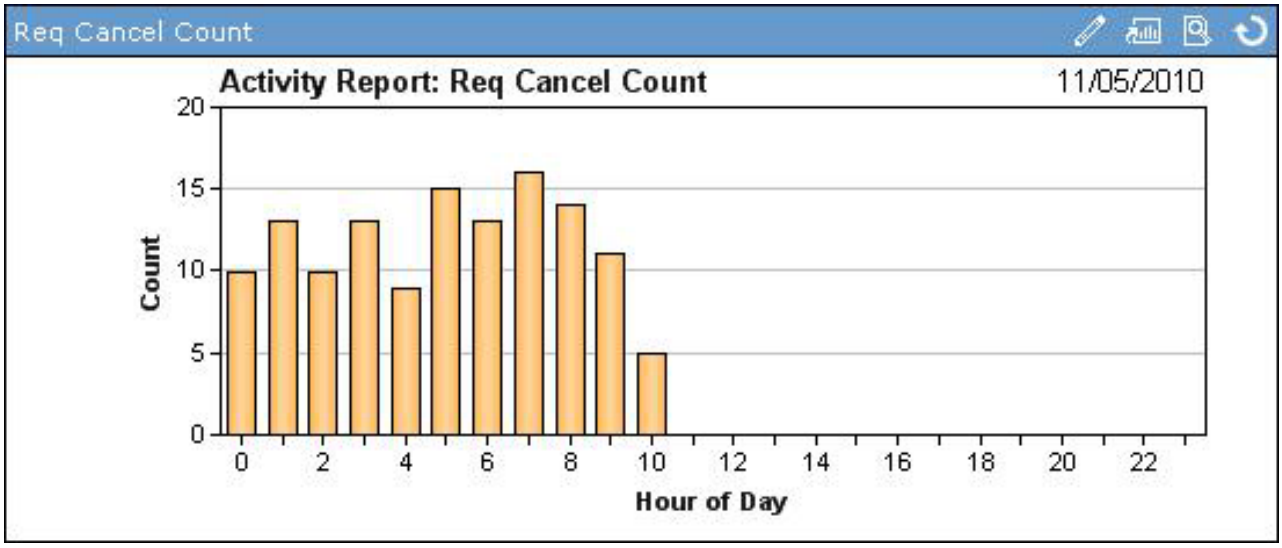


Figure 69. Activity Reports - Req Cancel Count

Total Fact Count

Total number of facts that are recorded in all sessions for each hour of the current day.

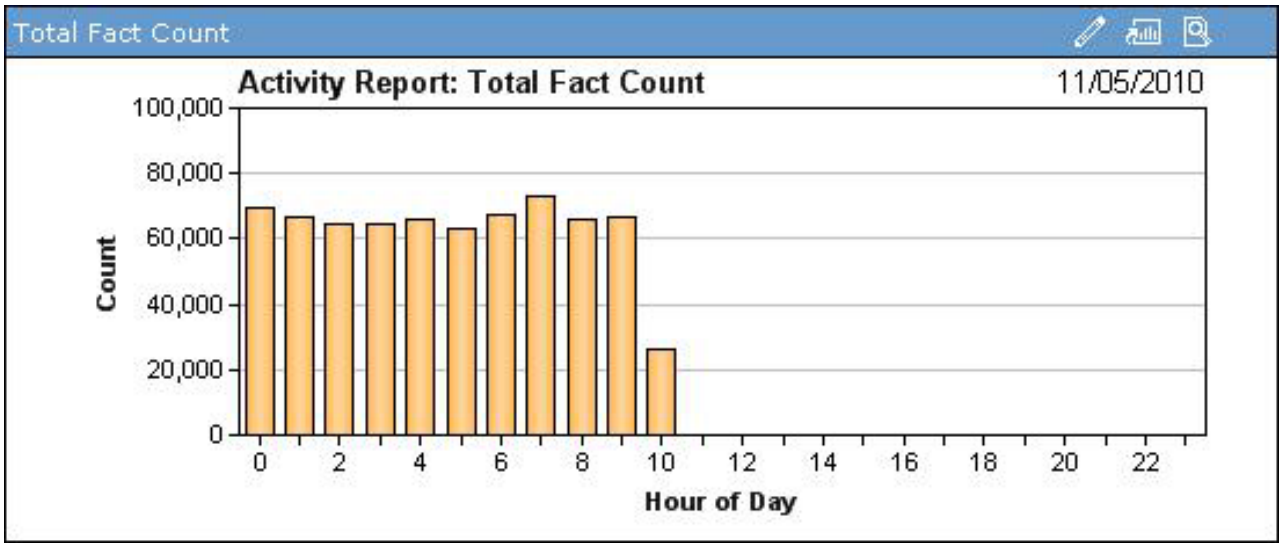


Figure 70. Activity Reports - Total Fact Count

Facts/Hit

Average number of facts that are recorded in each hit for each hour of the current day.

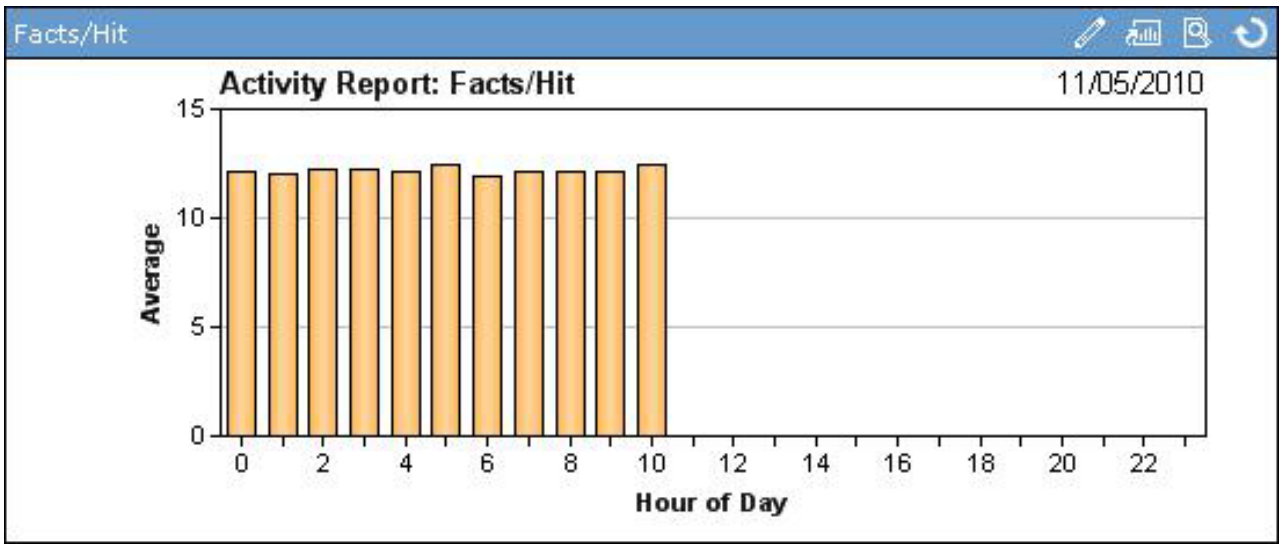


Figure 71. Activity Reports - Facts/Hit

Facts/Session

Average number of facts that are recorded in each session for each hour of the current day.

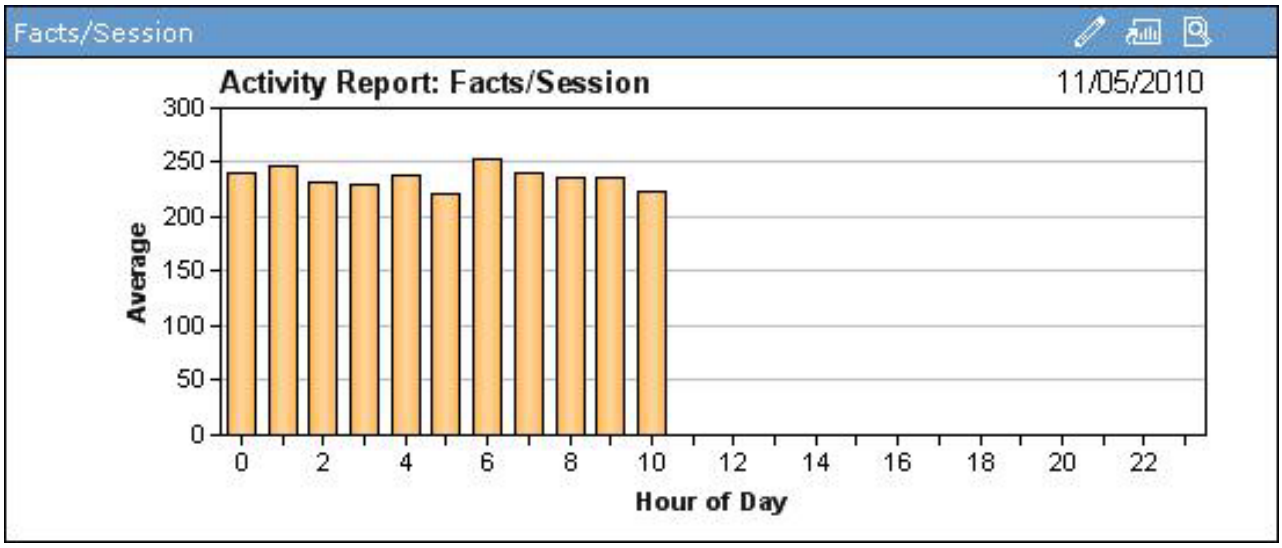


Figure 72. Activity Reports - Facts/Session

Performance Reports Tab

Reports in this tab provide useful performance metrics.

- These reports can be examined individually. See "Analyzing Performance" on page 70.

Segmented Response Time

Displays average response times for individual pages, which are broken down by each segment of the trip: Average Page Generation time, Average Network Trip time, and Average Render time in the visitor's browser.

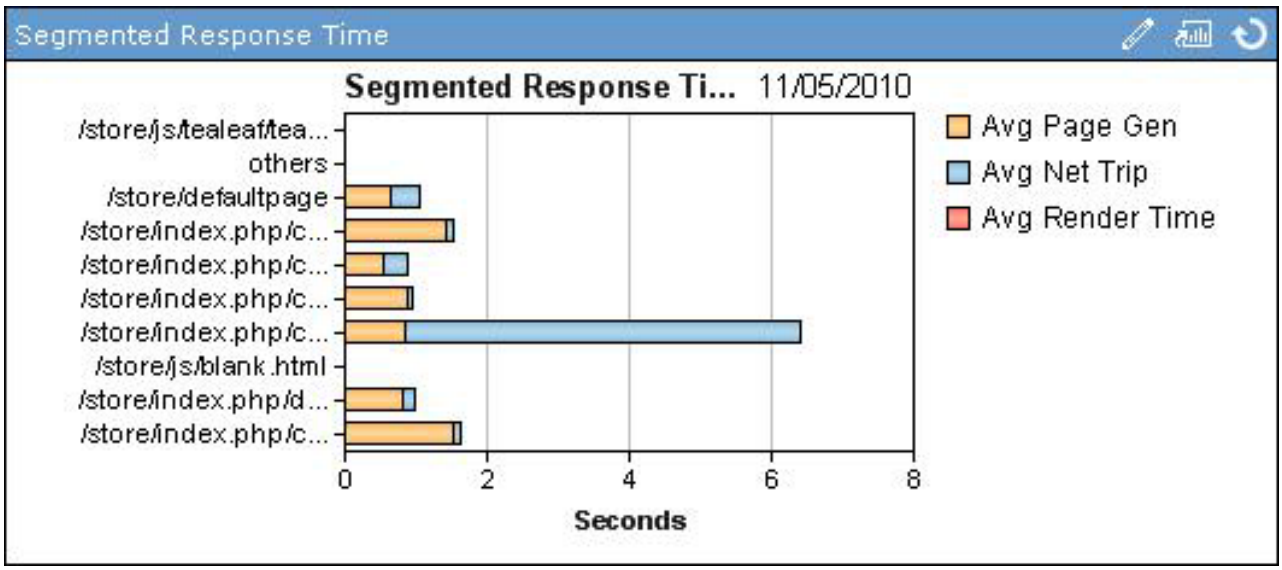


Figure 73. Performance Reports - Segmented Response Time

Top Pages

For the current date, the Top Pages report displays the most popular pages visited on your web application. The report table is sorted by the total Page Count of the most popular URLs and includes information about the average size of each page in Kb.

Top Pages

URL	Hit Count	Avg Size (KB)
/store/js/tealeaf/tealeaftarget.php	29,712	0.41
others	3,372	0.74
/store/defaultpage	1,843	25.74
/store/index.php/checkout/cart/defaultpage	1,706	41.47
/store/index.php/customer/account/login/defaultpage	1,434	19.74
/store/index.php/customer/account/loginpost/defaultpage	1,228	0.49
/store/index.php/customer/account/defaultpage	976	24.65
/store/js/blank.html	668	0.24
/store/index.php/defaultpage	660	26.52
/store/index.php/checkout/onepage/defaultpage	515	59.08

Figure 74. Performance Reports - Segmented Response Time

Chapter 3. Tealeaf Report Builder

The Tealeaf Report Builder enables flexible report configuration and delivery in various output formats. Through the Report Builder, you can select events and drag their dimensional data into your report, applying segment filtration as needed. As you apply changes, the report is updated in real-time, enabling precision report and data configuration.

Note: Report data is always synchronized to the Tealeaf system timezone. See "Configuring the System Timezone" in the *IBM Tealeaf CX Configuration Manual*.

- Reports can be scheduled for generation and publication to Tealeaf dashboards. See "Report Manager" in the *IBM Tealeaf Reporting Guide*.
- To access Report Builder, select **Analyze** > **Report Builder** from the Portal menu.
- For more information about data concepts, see “Tealeaf Data Model” on page 5.

Building Reports

Through the Report Builder interface, you can quickly assemble meaningful reports that are configured to display the required data in an appealing format.

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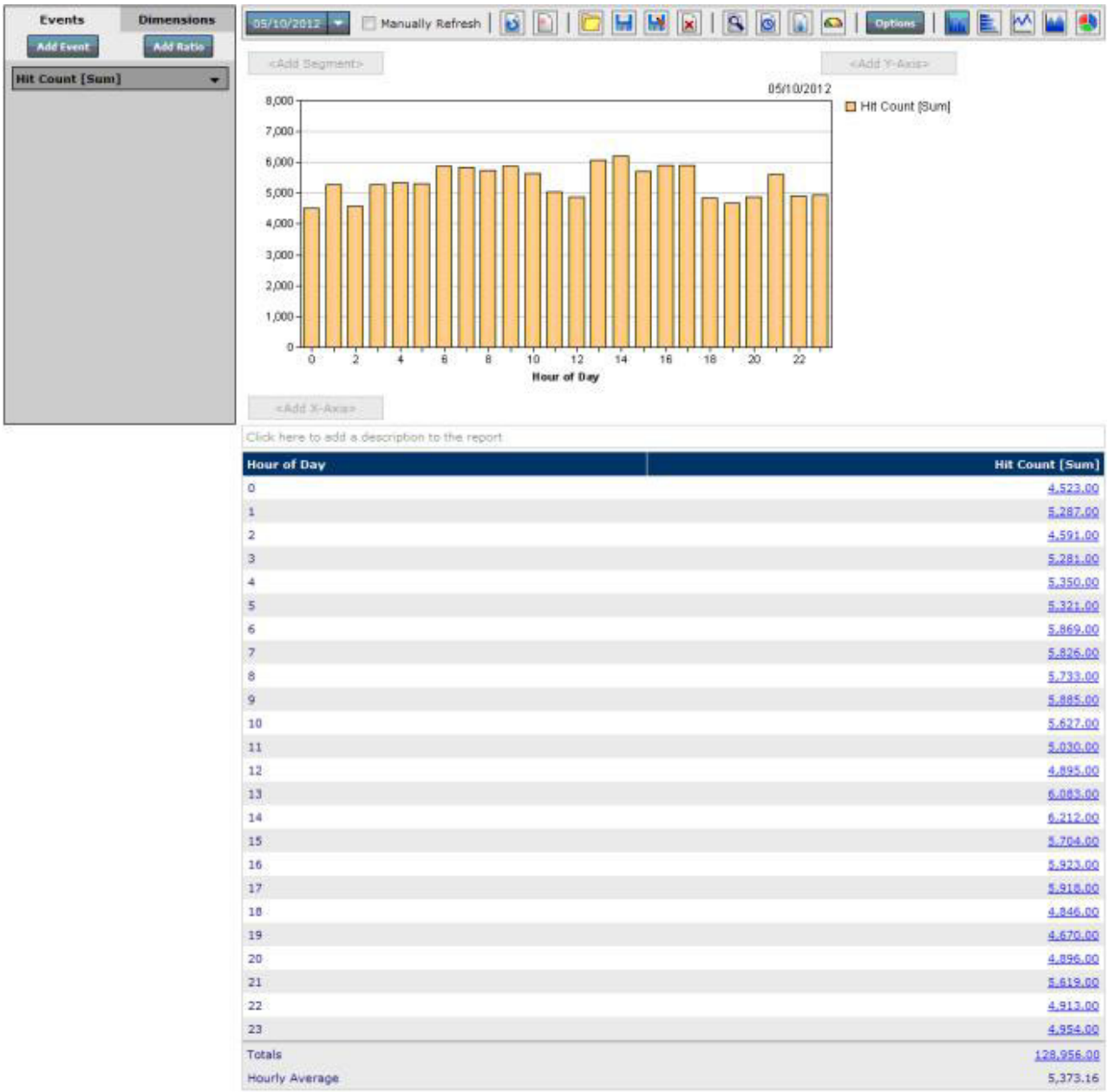


Figure 75. Tealeaf Report Builder

Using the on-screen tools, you can specify the events and dimensions to add to your report, define the time period, and drill into details.

- From the left side of the Report Builder, you can add or remove events and dimensions. See "Data Selector Panel" on page 109.
- The configured report is updated in real time in the main window. See "Chart Window" on page 130.
  - Details on the currently displayed report can be accessed through the toolbar. See "Report Details" on page 110.
- A toolbar of useful tools is available above the main window. See "Toolbar" on page 108.
  - Through the toolbar, you can specify the date or range of dates to display in the report. See "Date Selector" on page 127.

– To change display options, click **Options**. See “Report Options” on page 137.

In the table below the chart, you can review the details of the displayed report. Some columns of the report contain hyperlinks for the reported values. See “Drill-Down Searches” on page 136.

Basic Workflow

1. Add events. See “Adding Events” on page 112.

   Note: To segment by multiple dimensions, you must use events that have report groups (facts) that contain both dimensions.
2. Add dimensions to X-axis.
   - By default, the X-axis contains the Hour of Day dimension. When the chart is displaying one day, Report Builder displays one hour buckets.
   - Changing the X-axis dimension changes the way that the chart is rendered and the data that is returned for display.
   - In the X-axis, you can include up to eight dimensions that share a common dimension to create an implied hierarchy of dimensional values. This hierarchy is for display purposes only and cannot be charted.
   - See “Adding Dimensions” on page 120.
   - See “Effect of X-Axis Dimensions on Reports” on page 132.
3. Add dimensions to Y-axis.
   - Adding dimensions to the Y-axis creates a vertical striping, slicing the measured data in each X-axis bucket by the Y-axis dimensional values.

     Note: You can add up to one Y-axis dimension. See “Limitations on Chart Data” on page 122.
   - See “Adding Dimensions” on page 120.
   - See “Effect of Y-Axis Dimensions on Reports” on page 134.
4. Add segment. See “Adding Segments” on page 127.
   - Adding a segment does not affect the chart display. However, the source of data for the chart is changed.
   - You can apply up to eight dimensions as segments.
   - If needed, you click the segment's drop-down menu to select dimensional values with which to filter the data. See “Dimension Filtering” on page 123.
5. Configure date focus and comparison options. See “Date Selector” on page 127.
6. If you want, you can add a description for the report. See “Chart Description” on page 131.
7. Save your report. See “Saving” on page 142.
8. Optionally, you can export report data to Excel, PDF, or email format. See “Import/Export” on page 144.

Building Reporting Data Structures

The Report Builder uses data that is identified in the captured transaction stream by using dimensions, events, and facts. These data entities are created in the Tealeaf Portal.

These data entities are organized into groups for easy association. Some pre-configured dimensions, events, and groups are provided in the default installation.

- See "Tealeaf Event Manager" in the *IBM Tealeaf Event Manager Manual*.

Toolbar

Figure 76. Tealeaf Report Builder - toolbar

Table 9. Toolbar.

Icon	Name	Description
	Date Range	Select a date or date range. See "Date Selector" on page 127.
	Manually Refresh	When selected, the displayed report is not refreshed until the **Refresh** button is selected. When changes are made to the report, you must manually refresh it to reflect those changes.
	Create New	Create a report. The report tables are cleared.
	Refresh	Refresh the displayed report. • The Tealeaf Report Builder monitors when data must be refreshed. Data is cached for five minutes. Clicking this button forces a refresh of the report data.
	Open	Open a saved report. **Note:** When you browse for a report by label, all report labels are displayed, even if they contain Top Mover reports only. Those labels are displayed as empty. If the user does not assign a label to a report, the report is given the Default label, and available under the Default label.
	Save	Save the report. If you have not yet saved it, enter a title for the report, and click **Save**. See "Save Report" on page 143.
	Save As...	Save the report under a different name. See "Save Report As" on page 143.
	Delete Report	Delete the report.
	Report Details	View details on the events, dimensions, and other components of the report. See "Report Details" on page 110.
	Schedule Report	Schedule report execution and delivery. See "Report Schedules" on page 144.
	Export Report	Export the report. See "Export" on page 146.

Table 9. Toolbar (continued).

Icon	Name	Description
	Add Report to Dashboard	Add the report to a dashboard. See “Add to Dashboard” on page 143.
	Options	Open the display and data options. See “Report Options” on page 137.
	Vertical Bar	Display report as a vertical bar chart (default). • Individual events can be configured to display in different chart types. See “Drop-down menu” on page 114.
	Horizontal Bar	Display report as a horizontal bar chart. • Individual events can be configured to display in different chart types. See “Drop-down menu” on page 114.
	Line	Display report as a line graph. • Individual events can be configured to display in different chart types. See “Drop-down menu” on page 114.
	Area	Display report as an area graph. • Individual events can be configured to display in different chart types. See “Drop-down menu” on page 114.
	Pie	Display report as a pie chart. • Individual events can be configured to display in different chart types. See “Drop-down menu” on page 114. **Note:** You cannot apply functions or use Compare date ranges in pie charts.

Note: The toolbar icons to set the type of chart define the overall setting for the chart. This setting can be override for individual events. For example, you can create a vertical bar chart and define one event to be a line within the bar chart. See “Event context menus” on page 114.

Data Selector Panel

On the left side of the screen, you can configure the data to include in your report through the Data Selector Panel.

- To add events, click the **Events** tab. See “Adding Events” on page 112.
- To add dimensions, click the **Dimensions** tab. See “Adding Dimensions” on page 120.

Figure 77. Report Builder - Data Selector Panel

Report Details

TheReport Details window displays information about the currently selected report, including all events, ratios, and dimensions included in the report.

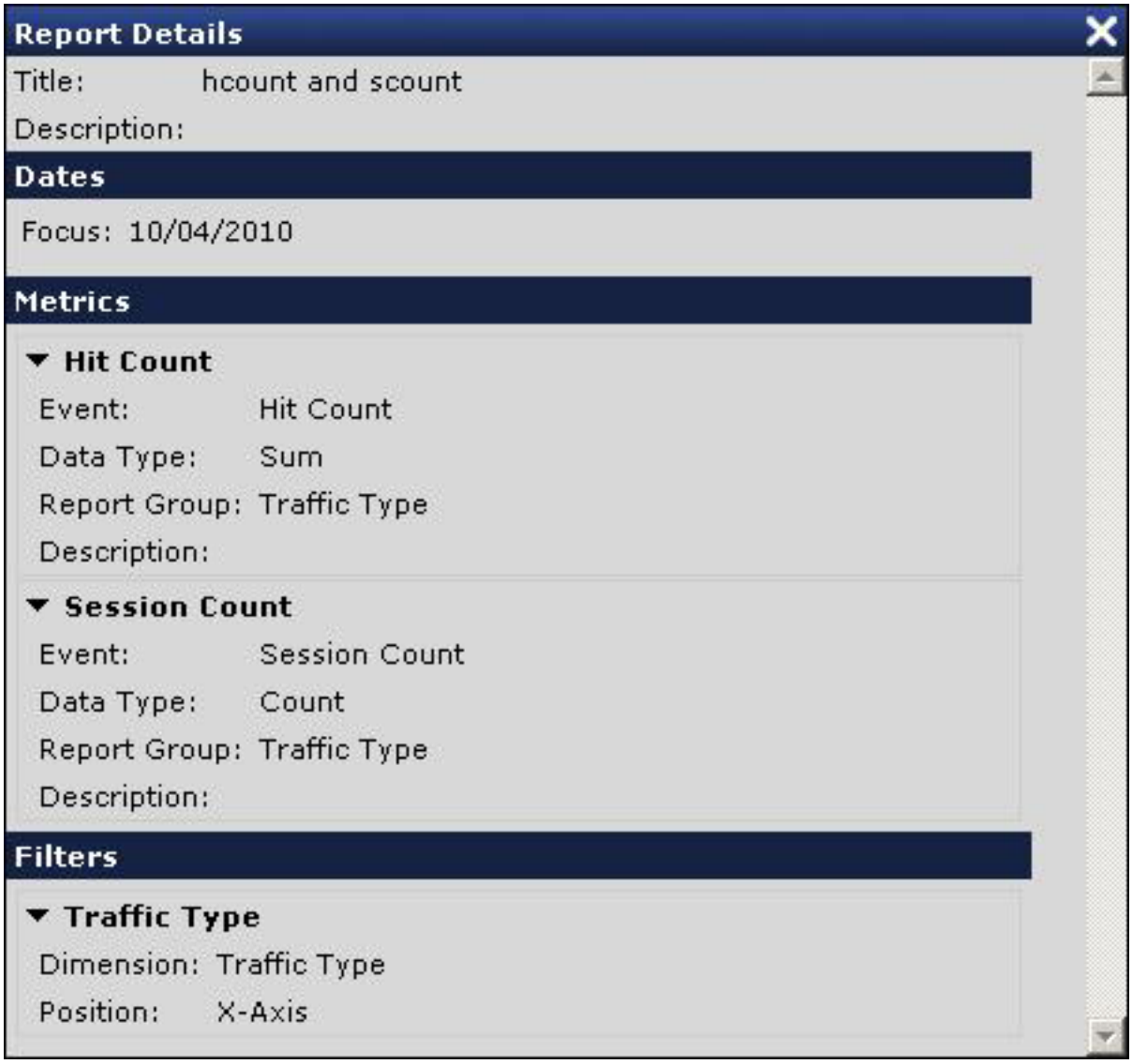


Figure 78. Report Details window

Section
Description

Title The name of the saved report

Description
The description can be edited next to the displayed chart.

Dates The focus date range and, if applicable, the compare range

Metrics
Events and ratios that are used in the report

Filters Dimensions that are applied to filter the report data

Reports Provided by Tealeaf

Tealeaf provides a set of reports that can be loaded through the Portal.

• See Chapter 5, "Reports Provided by Tealeaf," on page 165.

Many of these reports can be loaded or re-created through the Tealeaf Report Builder to generate reports specific to your reporting needs. These reports can be useful tools for learning how the Report Builder works.

- See "Activity Reports" on page 22.
- Any report available in the Report Builder can be added to dashboards as charts or tables for snapshot reporting. See "Add to Dashboard" on page 143.

Adding Events

You can add events to the report. To add an event, select the Events tab. Click **Add Event**.

Some events can be charted with a limited set of dimensions. All events in a report must contain a report group that contains all of the included dimensions, although this report group does not have to be the same group across the events in the report.

Note: If you add an event or dimension and the total number of potential rows to be displayed in the detail table exceeds 1,000 rows, a warning indicates that report performance can be impacted. If the warning is ignored, the Report Builder attempts to query and display the report. If this row limit is indeed exceeded in the returned data, the report is not displayed. See "Report query returned too many rows (> 1,000). Please filter or TopN your request." on page 147.

- If the warning is canceled, the proposed changes are maintained so that you can apply filtering to reduce the scope of the report. See "Dimension Filtering" on page 123.

Note: If you add multiple events with shared dimensions, all data is displayed regardless of whether the data appears for both events. Suppose Event A and Event B share Dimension 1, and Event A has data for Dimension 1 value 1a, but Event B does not. The data for Event A, Dimension 1, value 1a is displayed in the report, while Event B shows a blank value for that data point. Dimension values that do not exist in the data set can be filled with `0`.

Note: You cannot add multiple instances of the same event with the same data type to a single report, as it would be considered a duplicate, which is not allowed. However, if you add the event and change the data type for the first instance, you can then add the event again, as the event/default data type combination is not present in the report.

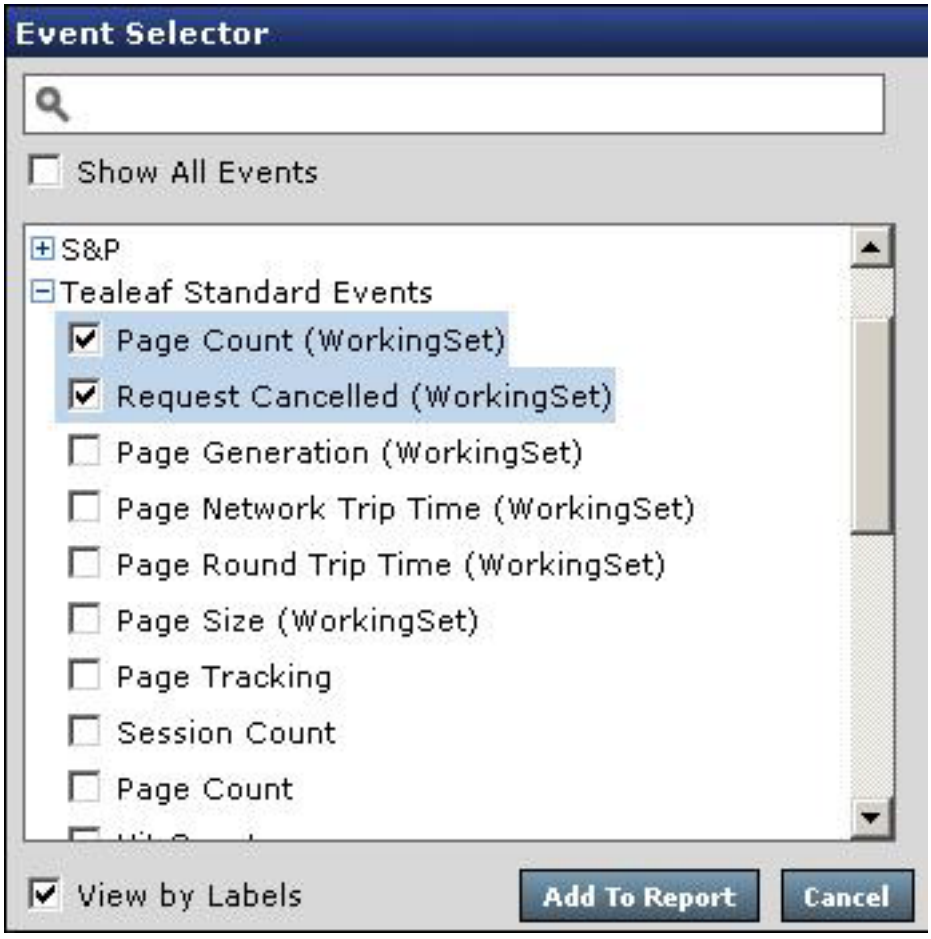


Figure 79. Event Selector

In the Event Selector, you can select one or more events to add to the report as it is specified. When added, these events supplement the events that are already added to the report.

- For more information about a listed event, move the mouse cursor over the event icon. The event tooltip information is displayed.
- Events that cannot be added to the report are not displayed. Building block events cannot be added to a report. See "TEM Events Tab" in the *IBM Tealeaf Event Manager Manual*.

  Note: Inactive events can be added to reports, while they are configured for display in the Portal. During periods of inactivity, events do not create event values. If event values display as skewed in a report, you must verify that the event is active for the reporting period. See "TEM Events Tab" in the *IBM Tealeaf Event Manager Manual*.

  Note: The available events are restricted to events that have the dimensions currently in the report. If you create a report from scratch, there are no dimensions so you can pick any event. But once you add a dimension to the report, for example, dimension X, you can add only events that have dimension X.
- Events that are configured to discard the session can be added to the report. However, their session counts are always zero. See "TEM Events Tab" in the *IBM Tealeaf Event Manager Manual*.

- To filter the list of available events, start typing text in the textbox.
- To select an event, click the check box next to its name, and click **Add to Report**. The event is added to the Data Selector Panel, and the report is automatically updated.

After you add a numeric event, the data type for the event is listed in square brackets.

- For regular events, the default data type is `[Count]`.
- For numeric events, the default data type is `[Sum]`.
- For ratios, the data type is set to `[Ratio]`.
- If an item is renamed, the data type is no longer automatically displayed.
- The data type displayed in the report can be configured in the context menu. See "Drop-down menu."

You can add the same event or ratio multiple times to see the data reported in multiple ways, such as raw count or average. You must open the Event Selector multiple times.

Note: When the same event is added multiple times, its data is displayed on-screen only once, although the data can be in use in multiple ways in the report.

Automatic Event Dimension

If no dimension is added to the report, the special `Automatic` dimension is applied to the report. When report users adjust dates to display in the report, the appropriate date-based dimension is automatically selected for the report.

- If no dimension is added to the report, all included events must use the `Automatic` dimension.
- If a specific dimension is selected for any selected event, the `Automatic` dimension is not applied.

Event context menus

This information describes the different event context menus and their functions.

Drop-down menu

When an event is added to the report, the following items are available in the drop-down menu for the item.

Command
Description

`Data Type`
For numeric event data, you can configure how the event values are displayed. The current Data Type for an included event is listed in square brackets after the event name in the left panel. These values are *fact values*.

Note: If search drill-downs are enabled in the report, you can complete drill-downs on events of Sum and Count data type. See "Drill-Down Searches" on page 136.

- `Count` - count of instances of the event
- `Average` - average of all encountered event values
- `Sum` - sum of all encountered event values
- `Minimum` - minimum of all encountered event values

- Maximum - maximum of all encountered event values

Report Group
Select the report group that is associated with the event to be displayed in the report.

Note: The Automatic report group is automatically selected for an event when no dimensions are present in the report. When a dimension is added to the report, you can select from the list of available report groups for each event. To select the oldest matching fact, select Automatic.

- See "Changing the report group" on page 116.

Display
Select how the selected event or ratio is displayed:

Note: These settings apply to the selected event and override the settings that are applied to the chart as a whole. See "Report Options" on page 137.

- Use Chart Default - Use the default settings for the chart
- Display as Bars - Display event data as a bar
- Display as Line - Display event data as series of lines
- Display as Shaded Area - Display event data as shaded area

Data Precision
For numeric events and ratios, you can configure the precision of the displayed data:

- Exact - Display data in its raw computed format
- Whole Numbers - Display data as whole numbers
- You can choose to display data with a specified number of digits after the decimal point.

Data Format
You can choose the format for displayed event data.

- Default - Event data is displayed in the format in which it was captured and processed.
- Percentage - Data is converted to percentage values. For example, the value 2.5 is displayed as 250%.

Add Function
For numeric events, you can optionally apply one of the available functions to display function output data that is computed over a specified period in parallel with your event data in the chart.

Note: Functions are applied to Focus data over a specified period.

Note: Functions are not compatible with use of a Compare range.

- See "Adding Functions" on page 117.

Rename Rename the display name of the event as displayed in the chart. This renaming applies to the display of the event in the chart only, which is useful for clarifying ratios or managing longer event names.

- When an event is renamed, the data type indicator is removed from display. See "Adding Events" on page 112.

Remove Remove the event from the chart.

Changing the report group: In most cases, using the event drop-down menu to change the report group that is displayed on a report does not alter the contents of the displayed report. The report group selection controls only the dimensions that can be used in the report.

Note: To change to a report group other than `Automatic`, you must include a dimension in the report, after which the relevant report groups are available for selection from the event drop-down menu.

Exceptions:

- If the newly selected report group was created after the original report group, the displayed data can reflect the available date range for the new report group. If the new group is older than the original one, historical data can be omitted or filled with zeros.
  - See "TEM Dimensions Tab" in the *IBM Tealeaf Event Manager Manual*.
- In Advanced mode for events, it is possible to configure events to report values to specific facts. However, this method is not recommended.

Otherwise, changing the report group to which a dimension on a report belongs must not affect the displayed report.

Compare menu

When a compare period is configured for the event or ratio, the Compare menu is displayed beneath the selected event or ratio.

- Using a Compare range, you can compare the data from the displayed Focus range to another configured period in the same chart. For more information about configuring the Compare range, see “Compare Range” on page 128.

Command
: **Description**

`Display`
: Select how the selected function is displayed:

  Note: These settings apply to the specific metric of comparison and override the options that are selected for the whole chart. For more information about configuring options, see “Report Options” on page 137.

  - `Use Chart Default` - Use the default settings for this type of chart
  - `Display as Bars` - Display function data as a bar
  - `Display as Line` - Display function data as series of lines
  - `Display as Shaded Area` - Display function data as shaded area

`Data Precision`
: You can configure the precision of the displayed data:

  - `Exact` - Display data in its raw computed format
  - `Whole Numbers` - Display data as whole numbers
  - You can choose to display data with a specified number of digits after the decimal point.

`Remove` Remove the function from the chart.

Function menu

If a function is applied to the Focus range data of the selected event, the named function is displayed beneath the event.

- See “Adding Functions” on page 117.

The following commands are available in the function's drop-down menu.

Command
Description

Function Period
Configure the range of the function period in data points. Depending on the function in use, this period range can have different interpretations. See "Function period ranges" on page 118.

Remove Function
Remove the function from the chart.

In addition to these commands, the Function menu contains the Display commands of the drop-down menu. See "Drop-down menu" on page 114.

Event data counts

You can also select what type of value to show for each event. If you want to see different data counts for the same event, add the event multiple times and set the data counts for each event as needed.

Since you can put both bars and lines on the same graph, you can do things like show the event count and average calculations on the same graph.

The display indicates the type of value that is displayed in the graph and the table headers. If you add the same event twice, you can see the data counts in use for each instance of the event.

Adding Functions

Optionally, you can apply mathematical functions to numerical event data or ratios for the Focus range and display the results in the same chart as the instance data. Using these functions, such as same day average, average, minimum, and maximum, you can make immediate comparisons of instance data against data across the function period range.

- To the same metric, you can add multiple functions or duplicates of the same function, with different date ranges. If multiple functions are used for the same metric, the first function must have a value, or none of the functions are displayed.

  Note: Functions can be added for any event or ratio if no dimensions are present. If the `Hour of Day`, `Day and Hour`, or `Day` dimension is added to the chart, you must explicitly add a time-based dimension to the chart to enable the adding of functions.

  Note: Functions cannot be used in the same report as Top N filtering. See "Top N dimension filtering" on page 125.

  Note: If you add multiple ratios with functions to a report, you cannot use non-calendar dimensions in it.

Configuration steps

1. Functions are applied to Focus data over the specified period range. Functions can be applied to the Focus range data only. They may not be added if a Compare range is defined for the report.
   - To display the Add Function menu, you must remove the Compare range from the report.

2. To add a function, select it from the Add Function submenu in the drop-down menu for the event or ratio.
   - See "Function types."
3. After you add the function, you can configure it, including changing the range of the function. See "Function period ranges."

Function types

The following functions are available to apply to Focus data for events or ratios.

- These function types are compatible with the following dimensions: Day, Day and Hour, and Hour of Day (for single date Focus ranges). These functions cannot be used with other time dimensions.
- If no date range dimension is explicitly included, the date interval is automatically calculated to display in the most legible output. For example, for date intervals larger than 28 days, the date interval is set to Month, and functions cannot be applied.

Table 10. Function types

Function	Description	Default Period Range
Previous Days Average	Average value of the values over the number of preceding days that are specified by the period range	4 data points (4 days)
Same Day of Week Average	Computes a rolling average of the data for the same day over the number of preceding weeks that are specified by the period range.	7 data points (7 days)
Same Day of Week Minimum	Minimum value of the values for the same day over the number of preceding weeks that are specified by the period range	4 data points (4 weeks)
Same Day of Week Maximum	Maximum value of the values for the same day over the number of preceding weeks that are specified by the period range	4 data points (4 weeks)

When a function is added, it is listed by name under the event or ratio to which it is applied. The chart is updated to include the function output next the focus period data.

- You can add multiple functions of different types to the same event or ratio. You can not add multiple functions of the same type to the same item.
- You can change the type of charting for the function in the drop-down menu. See "Function menu" on page 116.
- Each function is also added as a column in the detail table.

You can configure aspects of the display of the function data from its drop-down menu.

- Specifically, you can configure the range of the reporting period for the function data. See "Function period ranges."
- See "Function menu" on page 116.

Function period ranges

The period range for the function indicates the number of data points to use in the calculation. You can select one of the predefined values or enter a custom value for this period.

Note: Depending on the type of function, how the configured number of data points applies to the Focus data can vary. See “Function types” on page 118.

When a function is added, no check is made to see whether data is available for all data points required to fill the function period range. Reported values can be influenced by incomplete data. For example, if only seven days of data exist for a 28-day period, then the average value calculations are skewed downward. Minimum and maximum values can not capture the true values over the period.

- For averaging functions, the function period range must be at least 3.
- The upper limit in days to the function range is defined by the number of days of daily reporting data that are retained (`Reporting Data (daily)-Days Retain`).
  - This limit does not factor the date when Tealeaf was installed; it is possible to specify a function period that includes dates before Tealeaf was installed.
  - See "CX Settings" in the *IBM Tealeaf cxImpact Administration Manual*.

Note: To verify the presence of data over the function period, configure the Focus range for each event to which you are adding a function to be a period as long as the function period range.

Adding Ratios

In addition to reporting on event values, you can create reports on ratios between events. You can create ratios on counts or sums or combinations of both.

- To add a ratio, select the**Events** tab, and click **Add Ratio**.

Figure 80. Edit Event Ratio

To configure a ratio:

1. To select an event for the numerator, click **<Select a numerator**. The Event Selector is displayed. See “Adding Events” on page 112.
2. To select an event for the denominator, click **<Select a denominator**. The Event Selector is displayed. See “Adding Events” on page 112.
   - To change an event in the ratio, use the context menu for the event. See “Event context menus” on page 114.
3. To add the configured ratio to the report, click **Add to Report**.
   - To cancel changes, click **Cancel**.

Note: Drill-down searches on ratio data in the table grid are not permitted.

Ratio context menu

When a ratio is added to the report, the following items are available in the drop-down menu for the item.

Command
Description

Edit Ratio
Edit the selected ratio. See "Adding Ratios" on page 119.

Display
For more information about display options, see "Drop-down menu" on page 114.

Data Precision
For more information about data precision options, see "Drop-down menu" on page 114.

Add Function
For numeric ratios, you can optionally apply one of the available functions to display function output data that is computed over a specified period in parallel with your ratio data in the chart.

Note: Functions are applied to Focus data over a specified period.

- See "Adding Functions" on page 117.

Rename Rename the display name of the ratio as displayed in the chart. This renaming applies to the display of the ratio in the chart only, which is useful for clarifying ratios or managing longer ratio names.

Remove Remove the ratio from the chart.

Adding Dimensions

To complete dimensional analysis in your report, you can add dimensions to any of the three designated locations: X-axis, Y-axis, or Segment.

- All dimensions in the report must have at least one report group in common with all other dimensions.
- You can not add multiple instances of in the X-axes and Y-axes. You can add multiple instances of the same dimension to the Segment area.
- For more information about adding segments, see "Adding Segments" on page 127.
- Dimensions can be moved between axes by using drag-and-drop, which preserves any configured dimension filtering.

To add a dimension to your report:

1. Click the **Dimensions** tab.
   - To filter the list of displayed dimensions, enter a string in the Filter text. The filter is applied in real time.
2. Review the available dimensions. You can add blue or gray dimensions to your report.
   - Blue dimensions: The blue dimensions are custom dimensions that are specified in the currently selected event.
   - Gray dimensions: Default Time dimensions are automatically recorded by Tealeaf.

- By default, only the compatible dimensions are displayed. If your selected event does not include a specific dimension, that dimension is not available for selection in the report. For example if the event does not have Browser Type as a dimension, the Browser Type dimension is not displayed in the left column.

- Dark gray dimensions: These dimensions are not available for selection for the current event.
  - To see all dimensions, including the ones that are not available for selection, click the**Show All Dimensions** check box. See "Dimension color coding" on page 122.

3. Drag-and-drop the dimension onto one of the available drop-zone slots in the report.

   Note: If you add an event or dimension and the total number of potential rows to be displayed in the detail table exceeds 1,000 rows, a warning indicates that report performance can be impacted. If the warning is ignored, the Report Builder attempts to query and display the report. If this row limit is indeed exceeded in the returned data, the report is not displayed. See "Report query returned too many rows (> 1,000). Please filter or TopN your request." on page 147.

   - If the warning is canceled, the proposed changes are maintained so that you can apply filtering to reduce the scope of the report.
   - You can also click **<Add** in the X-axis, Y-axis, or Segment area to select one from the Dimension selector.
   - To remove a dimension, click its drop-down menu and select **Remove**.

4. The report is updated.
5. Optionally, you can filter the included dimensions to display only selected values. See "Dimension Filtering" on page 123.

Dimension context menu

When a dimension is added to the report, the following items are available in the drop-down menu for the item.

Command
Description

`Filter` Apply filtering to the report based on dimension values. See "Dimension Filtering" on page 123.

`Rename` Rename the display name of the dimension as displayed in the chart. This renaming applies to the display of the dimension in the chart only, which is useful for clarifying dimensions or managing longer dimension names.

`Remove` Remove the dimension from the chart.

- Any filtering applied to the removed dimension is forgotten if you try to add it to another area of the report. You can drag the dimension between axes.

Locating events associated with a dimension

Note: You can use the Report Builder to identify the events with which a dimension is associated. Follow these steps:

1. In the Report Builder, click the**New** icon in the toolbar.

2. Click the**Dimensions** tab. Click and drag the dimension of interest to the X-axis.
3. Click the**Events** tab. Click **Add Event**.
4. Clear the**View by Labels** check box.
5. All listed events have been associated with the dimension and can be used in the same report.
   - You can also search for event + dimension combinations through the Portal. See "Searching Session Data" in the *IBM Tealeaf cxImpact User Manual*.
   - For more information about associating events with dimensions, see "TEM Events Tab" in the *IBM Tealeaf Event Manager Manual*.

Limitations on Chart Data

The following limitations apply to selected and charting data. Regardless of whether some of the selected events and dimensions can be charted or not, the data that is displayed in the chart is correct.

General data dimension limits to reports

In a report, you can have up to nine specified dimensions:

- 4 x-axis dimensions

  Note: A chart cannot be rendered for a report that contains multiple X-axis dimensions.
- 1 y-axis dimension
- 4 segment dimensions

A chart can have up to nine dimensions, including the date dimensions, which are always available.

Note: You can add more than four distinct dimensions by adding time dimensions. They do occupy spots in the X-axis, Y-axis, and Segment zones.

Dimension limits for charting

The following limitations apply to the display of chart data regardless of chart type:

- Multiple dimensions cannot be charted.
- You cannot chart a Y-axis dimension if you include multiple events.

The number of dimensions depends on the type of chart that you have selected:

- **Bar, Line, or Shaded charts:**
  - You cannot chart a Y-axis dimension if you include multiple events.
- **Pie:**
  - You can add up to 4 segment dimensions and 1 Y-axis dimension if you have only 1 event.
  - You cannot add a Y-axis dimension if you have more than 1 event.
  - You cannot add X-axis dimensions to a pie chart.
  - If you switch from a bar/line/shaded chart to a pie chart, the pie chart ignores the x-axis dimensions that you had configured.

Dimension color coding

In the Dimensions tab, the following color coding scheme is used to indicate the usability of a displayed dimension in the currently configured report.

Color	Description
blue	Dimension is user-configured dimension.
gray	Dimension is included in the default installation by Tealeaf.
dark gray	Dimension is not compatible with selected event.

Dimension Filtering

You can reduce what data is included in the chart by editing the dimension filtering to include or exclude specific dimensions, to limit the display of filtered dimensions to a specified top-N number of values, or both.

For example, suppose that you are interested in where visitors are first entering your site. You can create a session that is called `First Hit of Session`, which is triggered in all sessions on the first hit. You can then associate the Tealeaf dimension `URL (Normalized)` with the event. You can now report the URL where the first hit of the session is triggered.

Depending on the site, however, this list of URLs can be too long to be useful. Using dimensional filtering, you can limit the report to display only the top 25 values. For various reasons, you may have already decided to filter the list of values in the `URL (Normalized)` dimension to a whitelist of accepted and useful URLs. In the Tealeaf Report Builder, you can filter the report to display only the top 25 values from the whitelist.

- You can also filter the configured dimension filter for `URL (Normalized)` to exclude values. For example, you can remove the Tealeaf constants such as `others`, `limit`, and `null`.
- Except for the `Year` dimension, calendar dimensions that cross years are sorted in order of the dimension values and do not reflect the differences in year. For example, if the `Week` dimension bridges 2011 and 2012, Week 1 of 2012 is listed in the report before Week 52 of 2011.
- In the definition of the dimension, some filtration and remapping of dimension values may already be specified in a whitelist or a blacklist. When data is detected, these modifications are completed before the data is available for reporting. See "TEM Dimensions Tab" in the *IBM Tealeaf Event Manager Manual*.

1. To filter the report that is based on a dimension that you include, click the drop-down menu next to the included dimension and select **Filter**.

   Note: When dimensions, such as date dimensions, are added yet cannot be filtered, the Filter option is not available.
2. The Dimension Filter dialog is displayed:

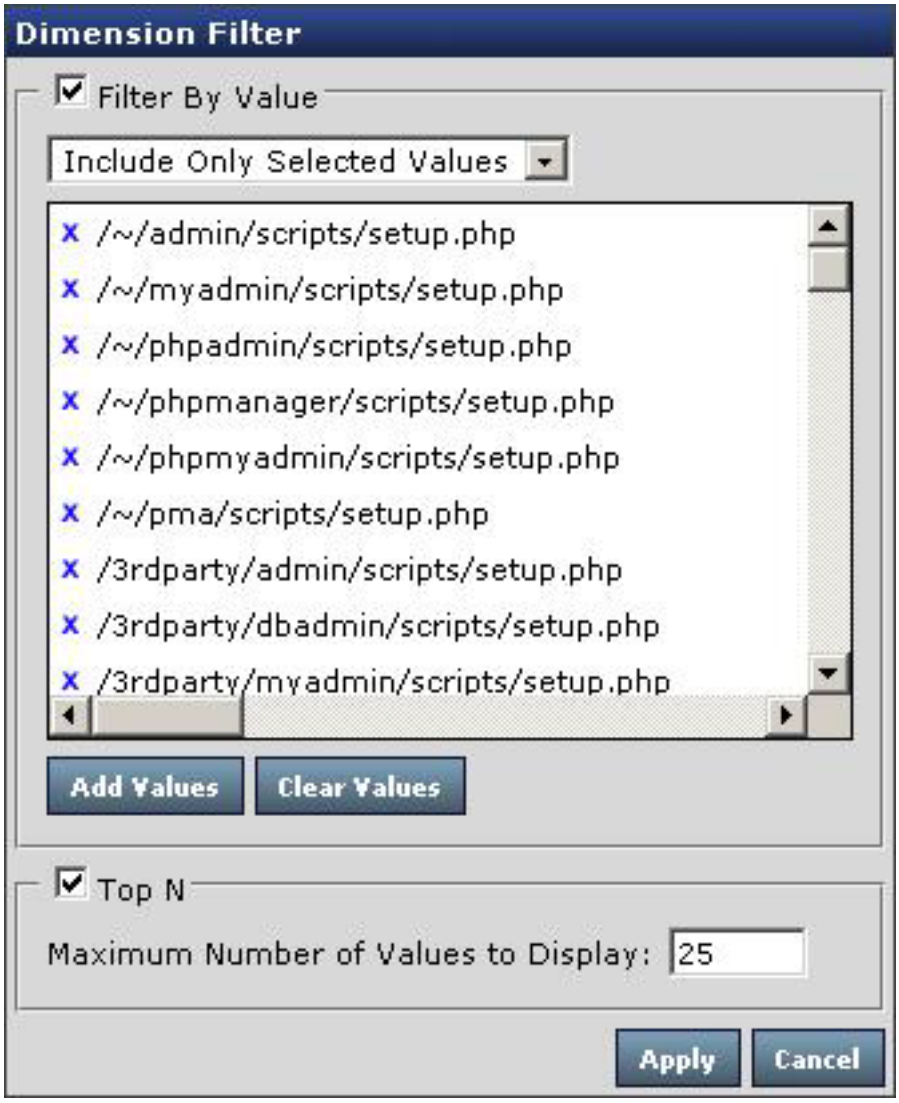


Figure 81. Report Builder - Dimension Filter

3. In the Dimension Filter dialog, you can select any of the following filtering modes:
   - *Filter by Value:* Based on dimension values that you select to include or exclude, the report display is filtered. See "Dimension filtering by value" on page 125.
   - *Top N:* For the selected set of values, you can choose to filter them to display only the values that occur most frequently during the report period. See "Top N dimension filtering" on page 125.

     Note: If this report is exported as a template, only whitelisted dimension values are included in the export, which keeps the export to a manageable size. Date dimensions do not contain whitelisted values.
4. Based on your selection, additional configuration can be required.
5. To remove any filter value from the list, click the `X` icon next to it.
6. To apply changes to dimension filtering, click **Apply**. The report is automatically updated.
   - To cancel changes, click **Cancel**.

Dimension filtering by value

When you select the Filter by Value option, you can choose to include or exclude specific values.

- By default, all values that are detected for the dimension are included in the displayed report.

  Note: Since the following dimensions do not have specific values, filtering on selected values for these dimensions is not permitted: `Day`, `Day and Hour`, `Week Starting`, `Quarter Starting`, and `Start of Year`.

1. From the Filter by Value drop-down, select the type of filtering to do:
   - `Include Only Selected Values` - Dimension values that are listed in the Dimension Filter dialog are included in the report.
   - `Exclude Only Selected Values` - Dimension values that are listed in the Dimension Filter dialog are excluded from the report.

     Note: If a filter is applied that excludes values, drill-down links are disabled, because of the complexity of the drill-down query.
2. Select values:

   Command
   Description

   Add Values
   Add values to be included or excluded.
   - `All Values` - Add all detected values for the dimension.
   - `Whitelisted Values` - Select values from the list of values that are whitelisted for the dimension.
     - Dimension whitelists are specified in the dimension definition. For more information, "TEM Dimensions Tab" in the *IBM Tealeaf Event Manager Manual*.
     - For more information about selecting values, see “Dimension Value Selector” on page 126.

   Clear Values
   Clear all values from the filter.

Top N dimension filtering

When the Top N option is selected, you are specifying the set of values that occur most frequently during the time period for display in the report.

With Top N reporting, you focus on the most commonly occurring dimension data. When the filter is applied, the report is updated to display data for the top values by occurrence, up to the maximum number of occurrences that you specified. For example, if the `URL (Normalized)` dimension is filtered for the top 25 values, the report is updated to show data that occurs on the 25 most frequently visited URLs of your web application.

- For Top N reporting, you can choose to display up to the Top 1000 values.

Limitations in Top N reporting: The following limitations apply to Top N reporting:

- Top N dimensional filtering can be applied to one dimension on the X-axis, Y-axis, or the Segment.
- Top N filtering cannot be applied to calendar dimensions.

- Top N filtering cannot be applied when a comparison period is applied to the report.
- Top N filtering cannot be applied in a report that also uses one or more data functions. See "Adding Functions" on page 117.

Depending on the type of dimension, some filtering options may not be available.

- The Day and Hour dimension or dimensions that return timestamp values cannot be filtered by values, since those values are not set.

Dimension Value Selector

When you choose to include or exclude values, you can select one or more dimension values in the Dimension Value Selector.

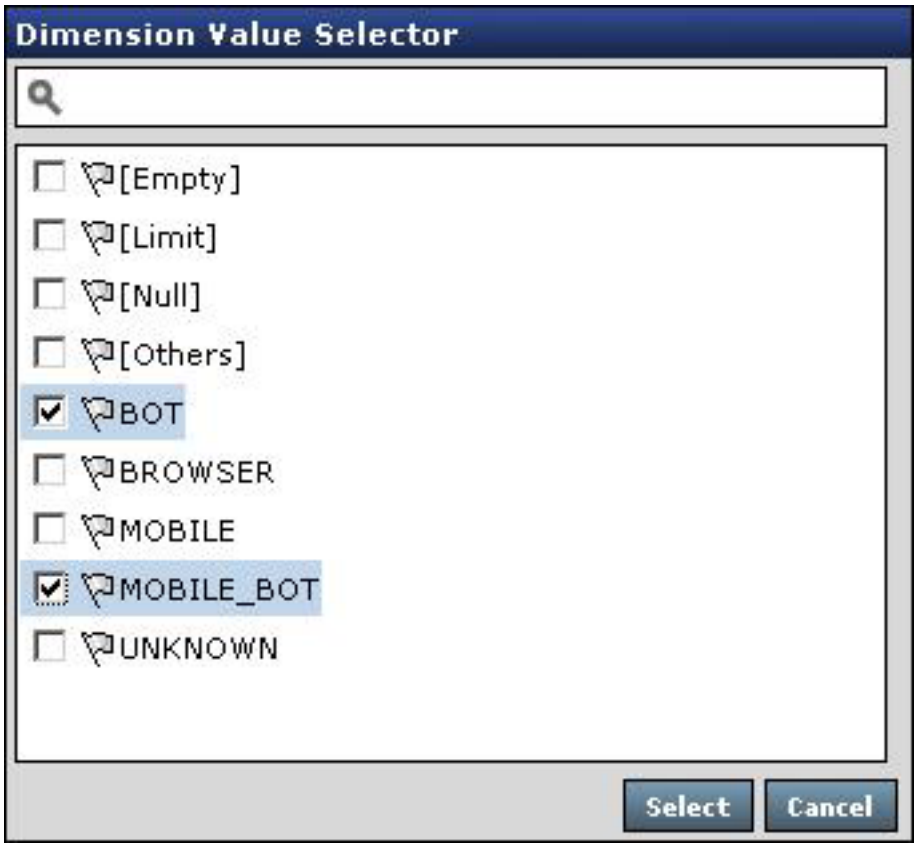


Figure 82. Report Builder - Dimension Filter - Selecting values

- To filter the display, enter text in the textbox and press `ENTER`. Only the dimension values that match the filter string are displayed.
- To use the selected values, click **Select**.
- To cancel changing the values, click **Cancel**.

The Dimension Value Selector can contain the following special values:

- `[Empty]`
- `[Limit]`
- `[Null]`
- `[Others]`

For more information about these values, see "TEM Dimensions Tab" in the *IBM Tealeaf Event Manager Manual*.

Adding Segments

You can specify data segments to use to filter the displayed report data. The Segment specification describes the values for which you are reporting. Segment filter values are not necessarily displayed in the report.

Note: If your segment is defined by a set of whitelisted values, drill-down searches on those values is not permitted due to the complexity of the query logic.

- To modify the values that are included in the segment, click the Segment's drop-down and select **Filter**. See “Dimension Filtering” on page 123.

For example, suppose that you are looking for an answer to the following question: "show me the products (Y-axis) by credit card (X-axis) for member types (Segments)." Suppose you want to examine what products the Gold and Silver members purchased by credit card. You do not necessarily care for breakdowns by individual member type; you want to only know the products that are purchased by Gold and Silver members collectively.

To complete this filtration, you add the Member Type dimension as the report segment. In the properties of the Member Type segment, add the values `Gold` and `Silver` to the whitelist.

To add a segment:

1. In the Report Builder, click **<Add Segment**.
2. Select the name of the dimension, and click **Select**. The dimension is added as a segment to the report.
3. By default, the segment filters to include all values in the report.
   a. To select specific values on which to filter, click the drop-down menu next to the dimension name in the report. Select **Filter**.
   b. See “Dimension Filtering” on page 123.
4. The report is filtered to display only the data that is applicable to the selected dimension values.

Date Selector

To select a date range to apply to the report, click the date range that is indicated in the toolbar. The Date Selector opens.

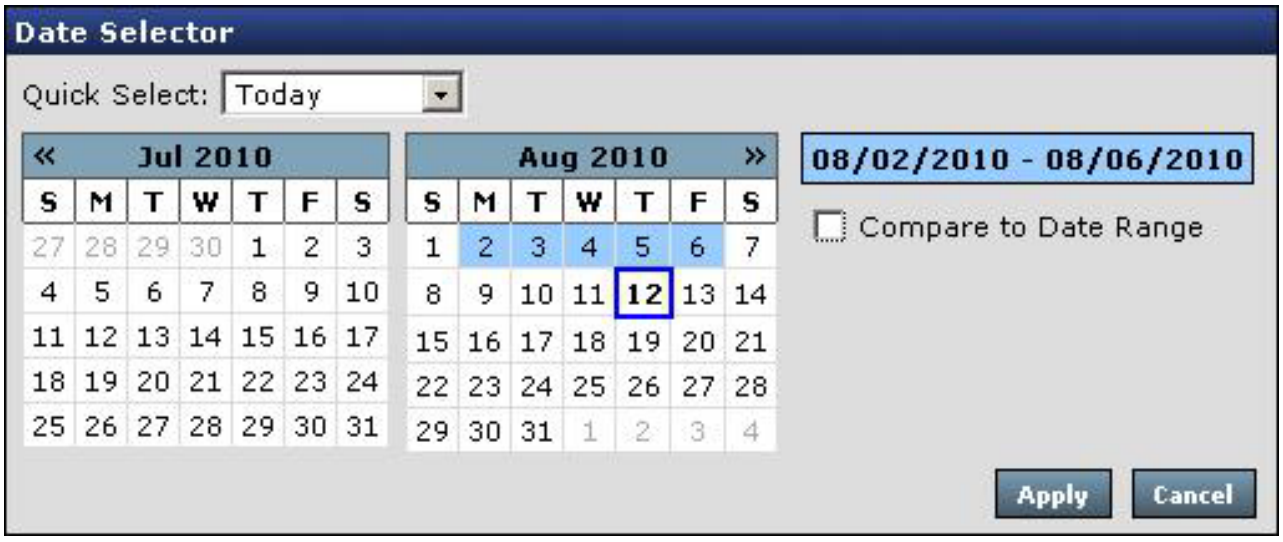


Figure 83. Date Selector In the Date Selector, you can select a single date or a range of dates to include in the report.

- To select a single date, click it and click **Apply**.
- To select a range of dates, click the start date and then press SHIFT and click the end date. Click **Apply**.
- To select date ranges that extend back from today's date, make a selection from the Quick Select drop-down. The Quick Select range is applied to the Focus range or the Compare range, depending on which one you are currently configuring.

Compare Range

You can compare the selected date range to another range.

Note: Functions may be applied to the Focus range only. When a function is added to a report, you may not configure a Compare range for the report.

To define a compare range:

1. Configure the base date range.
2. Click the **Compare to Date Range** check box.
3. Configure the compare range, which is indicated by yellow highlighting.

   Note: When you compare more than a month of data, the following dimensions do not work in the comparison:

   - `Day of Year`
   - `Month`
   - `Month Name`
   - `Quarter Starting`
   - `Week`
   - `Day and Hour` and `Hour of Day` can show confusing or incomplete data if the volume of data that is retained for hourly data is less than the selected date range.
   - Overlaps between the Focus range and Compare range are highlighted in green.

Note: The Compare range must be the same number of days in length as the Focus range.

In the following example, the focus range is compared to the preceding week:

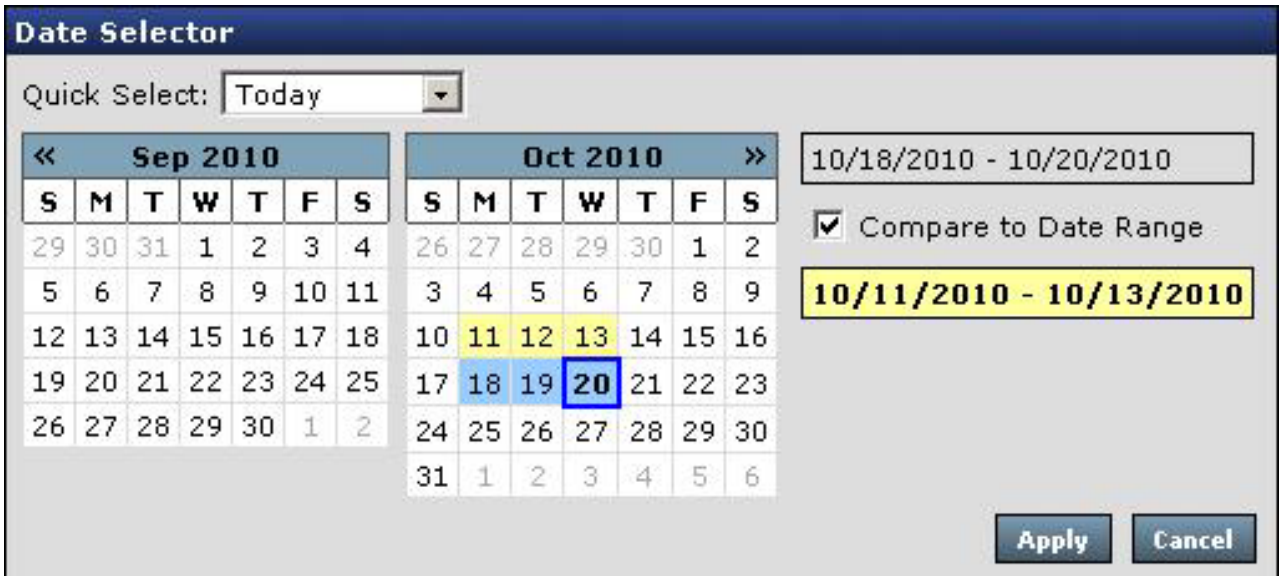


Figure 84. Date Selector - Compare Range

Below, you can see the results of the focus range and compare range on the displayed report for the Hit Count event.

Figure 85. Compare Range Example

The orange bars indicate the data for the focus range, while the blue bars indicate the comparison range data.

- In the detail table, data for the compare range is inserted in the far-right column.

Display effects

- If you include a compare range and also a time dimension as the x-axis, the range is limited to the focus range.
- For bar graphs, the compare range data is displayed in parallel to the focus range data. Remember that the displayed range is based on the range of the focus.
- These display effects do not apply to value list dimensions. Any values that is displayed in one range and not the other range are zero-filled.

The included compare range data points are for the dates corresponding to the focus range. If the x-axis includes units of hours, the focus and compare data include the data for the same hour of the focus and compare day. For example, 12-1 AM of a focus day maps to 12-1 AM of a compare day.

- If the compare range is larger than the focus range, the extra data is discarded.
- If you include an x-axis dimension other than time, all data in the focus and compare ranges are evaluated and compared.

Chart Window

Where possible, a configured report is displayed in graphical format in theChart window.

- By default, Hour of Day is the default X-axis.
- Long chart labels can be truncated. You can change labels in the Options screen. See “Report Options” on page 137.

Note: You can create a chart for any report that contains one or zero dimensions. Multi-dimensional charts are not currently supported.

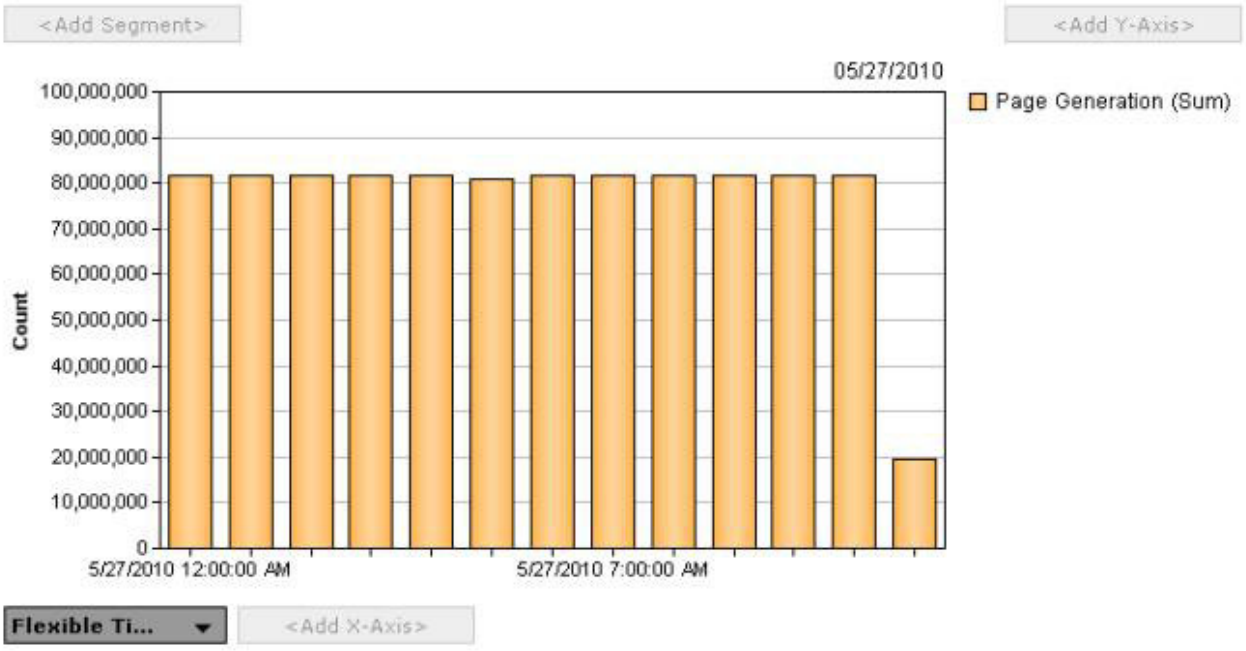


Figure 86. Chart Window - Vertical Bar Type

Chart Description

Below the chart, you can enter a description of the chart, which is also displayed in exported versions.

- To enter a chart description, click the textbox below the chart. Enter your description and click **Apply**. To save the changes to your chart, click the Save ( ) icon in the toolbar.

Chart Types

Reports can be displayed in one of the following format types.

- Vertical Bar: Report is displayed in a vertical bar chart. This is the default format.
- Horizontal Bar: Report is displayed in a horizontal bar chart.
- Line: Report is displayed as a vertically oriented line graph.
- Area: Report is displayed as a shaded area chart.
- Pie: Report is displayed in pie chart form.

The report type can be selected in the Toolbar. See "Toolbar" on page 108.

Event Data in Charts

This information describes the various types of event data.

Zero filling

Zero-filling is used to prevent reporting gaps. Report data can be reported as a set of zeros (`0`) if a time-based dimension is added to the report and data is not available for some displayed time segments.

- For null dimension values that are zero-filled, two dashes (`--`) are inserted in the report. Counts of these values are reported as `0`.

Events and timestamps

Hits are evaluated against the set of current set of events at the time of evaluation. If hits are spooled or otherwise not processed immediately, there can be effects in reporting if changes are made to event-related objects in the interim. A message is reported in the Portal. See "Reporting is delayed due to system performance" on page 147.

- For more information, "Tealeaf Event Manager" in the *IBM Tealeaf Event Manager Manual*.

Summary calculations

At the bottom of the report, you can review the summary calculations for the displayed table data.

Note: Total and average values are calculated only if the event is configured to display count or sum data. These summary calculations are not available for other event data types or added functions (for example, same day average).

The displayed calculations are based on the data available in the detail table, which reflects the currently displayed report.

- To review the sessions that comprised the total, click the link in the Totals row. See "Drill-Down Searches" on page 136.
- The Totals calculation is the summation of the values for that event.

  - If the data type is Count, it is the summation of the event's counts.
  - If the data type is Sum, it is the summation of the event's sums.
- The Average calculation varies depending on the focus range.
  - If the focus period is one day, the displayed calculations are hourly averages.
  - If the focus period is more than one day, the displayed calculations are daily averages.
  - Applied dimensions have no affect on whether the calculation is hourly. The type of calculation depends only on the focus period. For example, if the focus period contains two days and the X-Axis is hourly because of an applied dimension, the average calculation is still Daily Average because the focus period is more than one day.
- If the dimension displays the Top-N values, then the summary calculations factor only the event counts or sums for the Top-N dimension values.
-

Note: The average reported at the bottom of the report differs from the average function that can be applied through the context menu for the event. That average function is a rolling average over the range that is specified for the function. See "Function period ranges" on page 118.

Effect of X-Axis Dimensions on Reports

By default, labels for dimensions on each axis are empty. To specify a label, click **Options**. See "Report Options" on page 137.

Note: For display purposes, chart labels for lengthy dimensional values can be trimmed. To see the original value, move the mouse over the label to display the tooltip.

Note: Multiple X-axis dimensions are not charted.

Chart:

- Bar Graphs
  - Each first x-axis dimension value becomes a major unit on the x-axis. On charts, no second x-axis dimension is permitted.
  - Each event gets a bar within the minor unit.
  - The height of the bar is the count, sum, and so on.
- Line/Shaded Area Graphs - Each dimension segment of each event gets a separate line.
- Pie - You cannot have X-axis dimensions on a pie graph.

Table:

- The first X-axis dimension becomes the first column. Each dimension value gets a row.
- The second X-axis dimension becomes the second column. Each dimension value gets a row for each dimension value in the first X-axis dimension.
- The Y-axis dimension is listed next.
- Each event gets a column. Events are listed in the order in which they are added to the report.
- Each row must have the total value for that dimension combination.
  - The first row must be the total value for all the dimensional values.

For example, let us say you have Price event that is stored like the following in the DB:

Table 11. Effect of X-Axis Dimensions on Reports

Member Type	Credit Card	Product	Price
Bronze	Amex	Plane	72
Bronze	Disc	Plane	63
Gold	Amex	Car	24
Gold	Visa	Boat	73
Gold	Visa	Car	32
Silver	Amex	Boat	43

If you add events to the report, set the Data Count to be Sum, and make Member Type and Credit Card the X-axis dimensions, the table looks like:

Table 12. Effect of X-Axis Dimensions on Reports

Member Type	Credit Card	Price
Bronze	Amex	72
Bronze	Disc	63
Gold	Amex	24
Gold	Visa	105
Silver	Amex	43

There are only 2 Gold rows where there were 3 in the database. This is because the 2 Gold+Visa rows in the DB get combined (73+32=105) since there is no longer the Product type to differentiate them.

Now let us say you have another event that tracks the Insurance. It looks like the following.

Table 13. Effect of X-Axis Dimensions on Reports

Member Type	Credit Card	Product	Insurance
Bronze	Amex	Plane	25
Bronze	Visa	Car	15
Gold	Amex	Car	15
Gold	Disc	Boat	20
Gold	Visa	Plane	25
Silver	Visa	Car	15

If you add this event to the report, you would get the following table:

Table 14. Effect of X-Axis Dimensions on Reports

Member Type	Credit Card	Price	Insurance
Bronze	Amex	72	25

Table 14. Effect of X-Axis Dimensions on Reports (continued)

Member Type	Credit Card	Price	Insurance
Bronze	Disc	63	-
Bronze	Visa	-	15
Gold	Amex	24	15
Gold	Disc	-	20
Gold	Visa	105	25
Silver	Amex	43	-
Silver	Visa	-	15

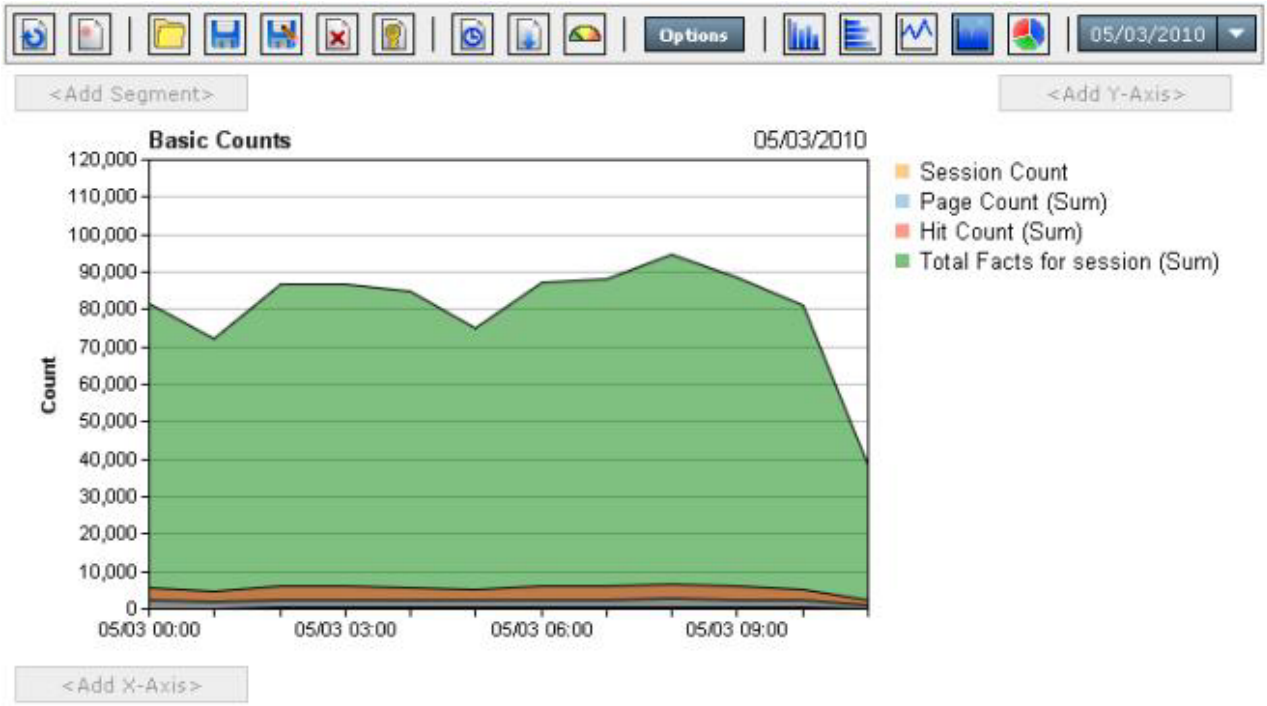
There are more rows than what is displayed in the first scenario. This is because the Insurance event had different Credit Card values for each Member Type than the Price Event. So the report table is like the union of 2 data tables.

Effect of Y-Axis Dimensions on Reports

By default, labels for dimensions on each axis are empty. To specify a label, click **Options**. See "Report Options" on page 137.

Adding a dimension to the Y-axis can be used to create a stacked data report.

Note: Multiple Y-axis dimensions are not charted.



Day and Hour	Session Count	Page Count (Sum)	Hit Count (Sum)	Total Facts for session (Sum)
05/03 00:00	222	2,227	5,552	81,666
05/03 01:00	216	2,068	4,873	72,120
05/03 02:00	274	2,444	5,861	86,620
05/03 03:00	266	2,389	5,882	86,795
05/03 04:00	253	2,241	5,743	84,823
05/03 05:00	328	2,168	5,012	75,227
05/03 06:00	292	2,454	5,872	87,145
05/03 07:00	308	2,429	5,949	88,331
05/03 08:00	312	2,613	6,397	94,817
05/03 09:00	290	2,168	5,981	88,504
05/03 10:00	334	2,269	5,268	81,260
05/03 11:00	100	940	2,437	38,222

Figure 87. Effect of adding Y-axis dimensions to shaded area chart

Chart:

- Bar Graphs - you get stacked bars, with each element of the stack being the dimension segment.
- Line/Shaded Area Graphs - Each dimension segment gets a line.
- Pie - The dimension values make up the slices of the pie.

Table:

The Y-axis dimension values each get a column after the X-axis dimensions.

For example, assume that you set Member Type as the first X-axis dimension, Credit Card as the second X-axis dimension, and Product as the Y-axis dimension. You would get the following table:

Table 15. Effect of Y-Axis Dimensions on Reports.

Member Type	Credit Card	Boat	Car	Plane
Bronze	Amex	-	-	72
Bronze	Disc	-	-	63
Gold	Amex	-	24	-
Gold	Visa	73	-	-
Gold	Visa	-	32	-
Silver	Amex	43	-	-

Legend

If you add a Y-axis dimension that contains many values, do not position the chart legend to be on top, which can corrupt the display.

- If the report contains many items, some values can not be displayed in the Legend.
- See "Report Options" on page 137.

Effects of Dimensions on Ratios

If you add a ratio to the report, any selected dimensions are applied to both the numerator and denominator.

For example, if you want to see a conversion rate report, you specify the numerator event to be a Completed Checkout event and the denominator to be a Started Checkout event. To review the conversion rate by Member Type, each Member Type value is applied to both the numerator and denominator at the same time.

Drill-Down Searches

When you click a hyperlink in the report table, the corresponding search query is run to return the set of sessions upon which the data was calculated. The Portal complete the search for sessions that contain the specified data within the listed time frame.

Note: Drill-down searches for matching sessions are completed in the Tealeaf system timezone. They are not completed in the user timezone.

Search messages

The number of sessions that are retrieved during the search drill-down can differ from the number that is listed in the report for the corresponding reporting period. One or more of the following messages may be displayed in the session list, indicating discrepancies between the session counts in the report and in the session list.

Message
: **Description**

`The source data is configured for all occurrences`
: The source event is configured to report all occurrences, which can differ from the number of corresponding sessions.

The Search Occurrence and Report Occurrence properties for the source data do not match
In the object definitions, the configured search occurrences to record are different from the occurrences to record for reporting.

The source data uses the event value and not the event count
The report is using event values, instead of event counts, which are unlikely to match the returned session count.

The source data uses a data function
A data function is applied to the source data, which is not applicable in search.

Limitations on drill-down searches

- Drill-down links are available for reports with up to 30 whitelist or blacklist values in segments.
- Drill-down links are not available when Top N filtering is applied to x-axis or y-axis dimensions. Drill-downs in the Totals row are not supported for Top N-filtered reports. See "Top N dimension filtering" on page 125.
- Drill-downs are not permitted on dimension values that are null (`[Null]`).
- Drill-downs on reports that use ratios are not supported.
- Drill-downs on the Totals row for Pie Charts are disabled when only events are added to the report.
- Drill-down searches on ratio data in the table grid are not permitted.

Report Options

For the currently displayed report, you can configure a set of display options.

- See "Display tab" on page 138.
- See "Advanced tab" on page 140.
- See "Data Item Order tab" on page 141.
- See "Security tab" on page 141.
- To apply any changes, click **Apply**. The chart display is updated.
- To cancel changes, click **Cancel**.

Display tab

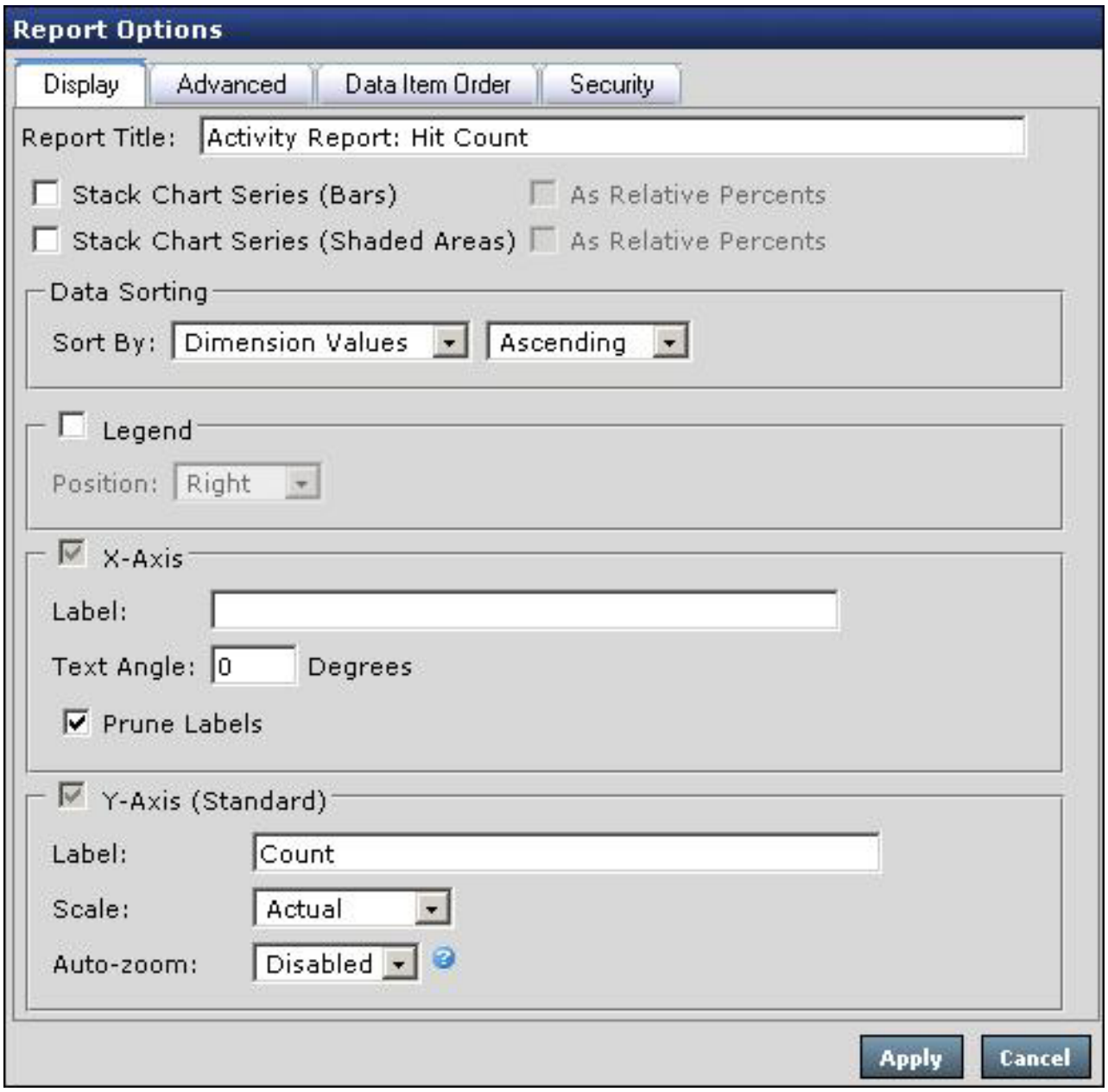


Figure 88. Display tab

Setting Description

`Report Title`
Title of the report

Note: This value is also the name of the report when it is saved. If you change the Report Title, and then save the report, you have renamed it.

`Stack Chart Series (Bars)`
Stack series data on the chart in bars.

- Auto-zoom of the report is disabled when this option is selected.
- To size the stack as relative percentages, click the check box.

Note: Bars and charts cannot be stacked together and are therefore independent options. Selecting a stacking option when no report data is configured with that display option results in no change to the report.

Stack Chart Series (Shaded Areas)
Stack series data on the chart in shaded areas.

- Auto-zoom of the report is disabled when this option is selected.
- To size the stack as relative percentages, click the check box.

Note: Bars and charts cannot be stacked together and are therefore independent options. Selecting a stacking option when no report data is configured with that display option results in no change to the report.

Data Sorting
You can choose to sort the display by dimension values or values in the data series, in either ascending or descending order. In the data table, these sorted values are displayed as columns from left to right.

Legend
You can select the location for where the legend is displayed.

X-axis
Select this check box to display the configured data along the X-axis of the display. Options:

- `Label` - Enter a text label for the X-axis.
- `Text Angle` - To display text at an angle, enter a value in degrees at which to display the text. Positive values display text at an increasing slope above the horizontal.
- `Prune Labels` - When selected, labels are pruned to fit the available space.

Y-axis
Select this check box to display the configured data along the Y-axis of the display. Options:

- `Label` - Enter a text label for the Y-axis.
- `Scale` - Select the scale for the Y-axis data. You can choose to display data in `Actual` scale or in the selected zoom scale.
- `Auto-zoom` - When `Enabled`, the chart is automatically zoomed to best represent the displayed data. For more information about auto-zoom, move the mouse over the Help icon.

Advanced tab

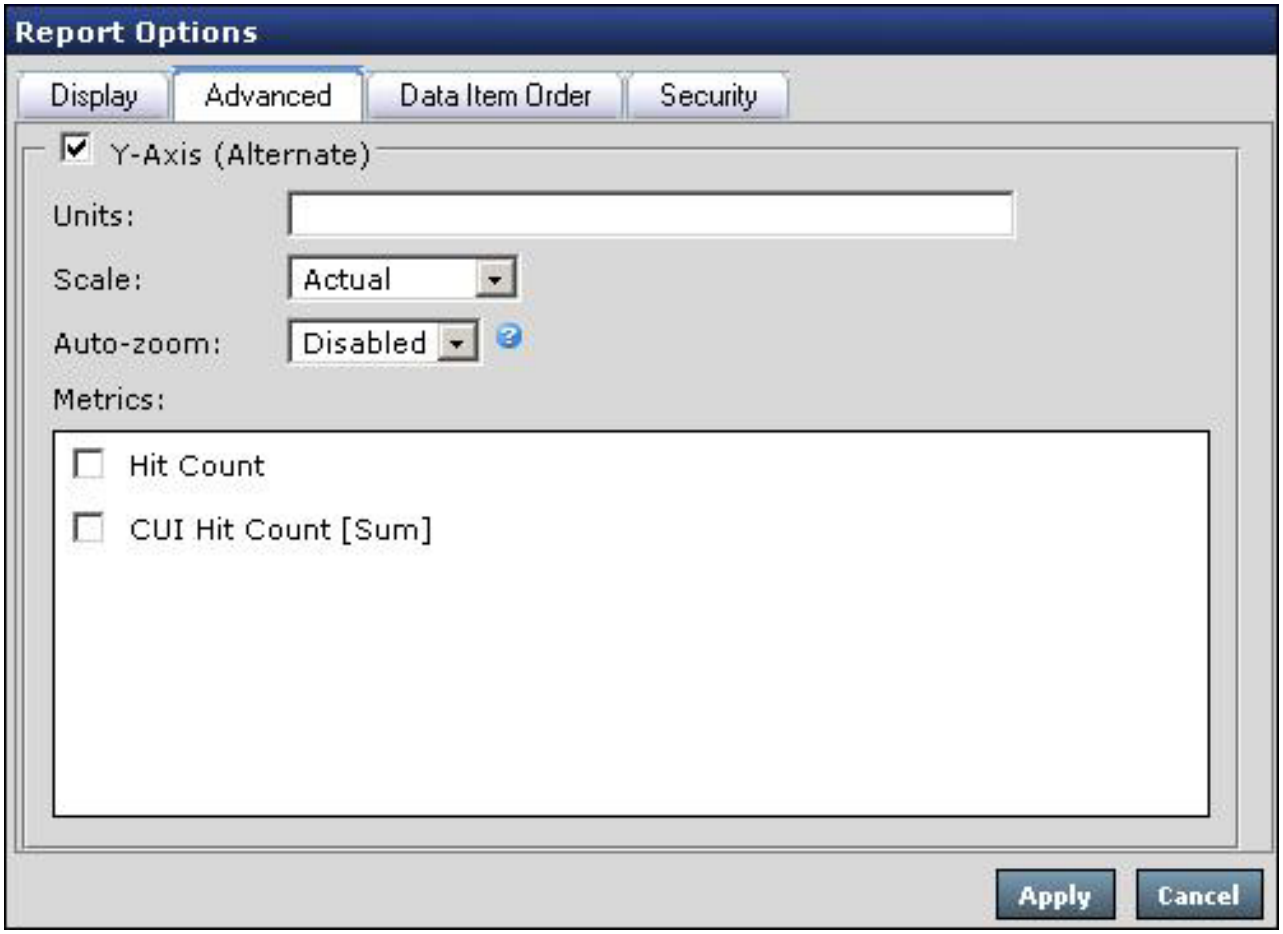


Figure 89. Advanced tab

In the Advanced tab, you can configure the display of the Y-axis to be on the left side or the right side of the chart. The following customizing options are available:

Setting Description

`Y-Axis (Alternate)`
When enabled, these settings are applied to the Y-axis on the right side of the graph, which is useful for plotting elements that have different sizing scales.

`Units` Enter a display label for the units.

- By default, this value is left blank.

`Scale` Select the scale for the Y-axis data. You can choose to display data in `Actual` scale or in the selected zoom scale.

`Auto-zoom`
When `Enabled`, the chart is automatically zoomed to best represent the displayed data. For more information about auto-zoom, click the Help icon.

`Metrics`
Review the list of displayed events.

Data Item Order tab

If you add multiple events and ratios to your report, you can change the order in which they are listed in the left panel and the main display.

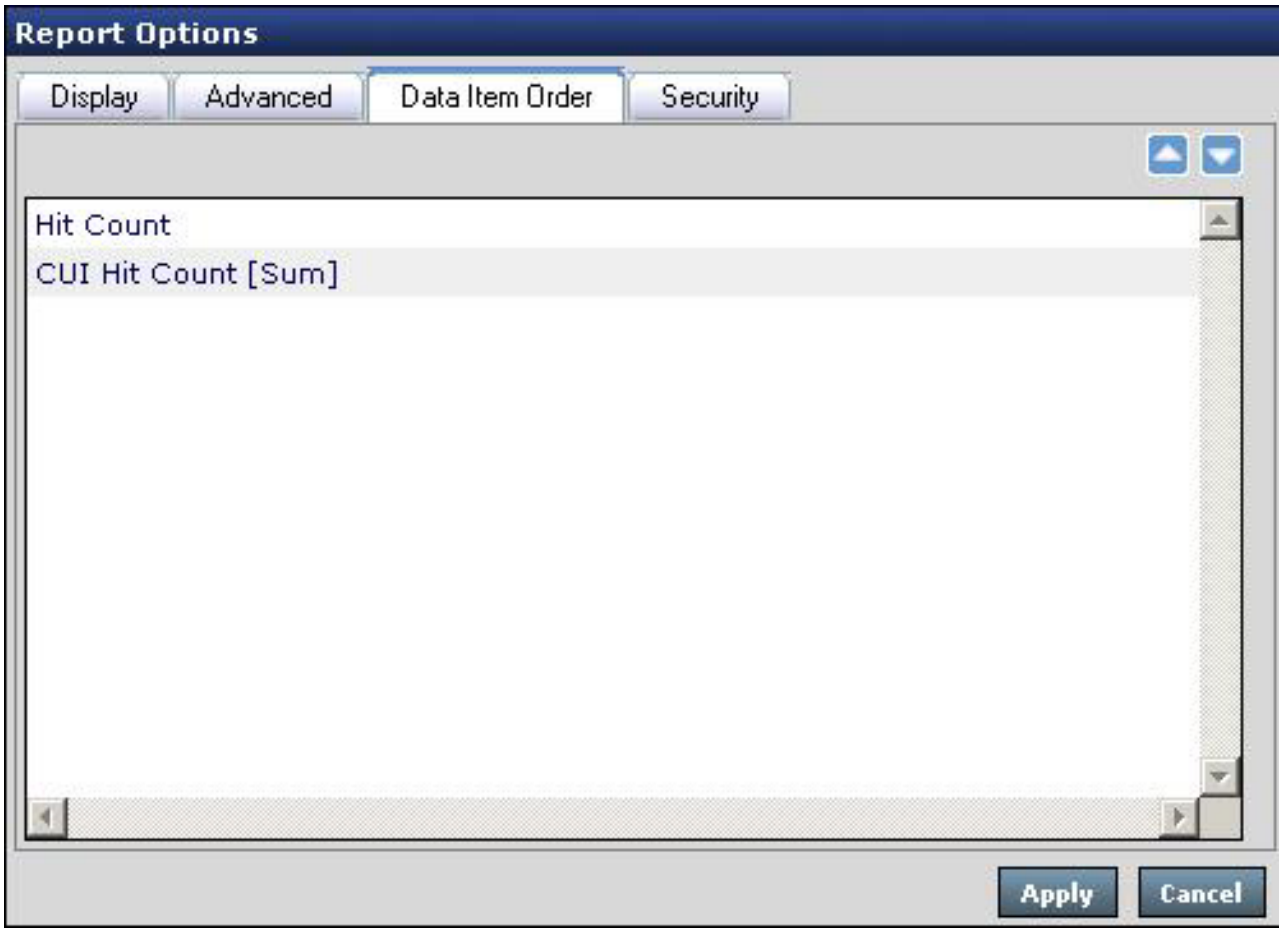


Figure 90. Data Item Order tab

In the dialog, the items in the report are listed in the current display order.

- To move an item in the display order, select it and click the Up or Down arrow.
- To apply your changes to the report, click **Apply**.
- To cancel changes, click **Cancel**.

Security tab

In the Security tab, you can select the users and groups who can view and edit the current report.

- To configure access, select the appropriate user groups in the left or right panel and click **Apply**.
- To cancel changes, click **Cancel**.

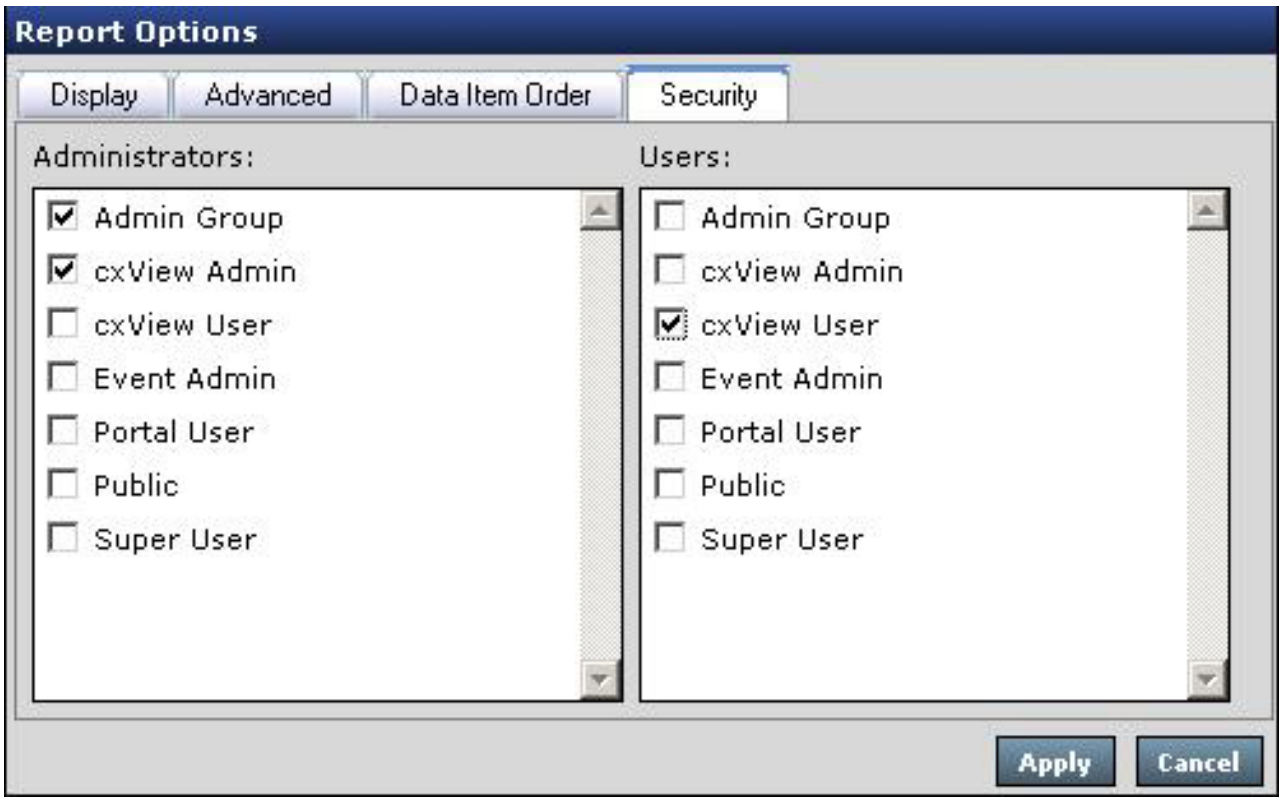


Figure 91. Security tab

In the left panel, you can configure the administrators of the report by available user group.

- Report administrators have all of the permissions available to specified users of the report.

  Note: If a user group is given administrator access, user-level access is automatically granted to the user group, even though that access is not visibly displayed in the window.
- Report administrators can edit and delete the report.
- Members of the `Admin` and {cxView Admin}} groups are administrators for all reports in the system. In the right panel, you can configure the users of the report by available user group.
- Report users can see the report, change parameters, export it, and save it under a new name.

You can also change report access permissions through the Report Manager.

- See "Report Manager" in the *IBM Tealeaf Reporting Guide*.

Saving

You can save the report at any time under its current name or under a new name, if you do not have write permissions on the report.

Note: Only Tealeaf users who are designated as administrators of the report can save changes to it. Any user who can see the report can save it under a different name and edit the new version. These two report versions can cause confusion among users.

Note: When you save a report, you are saving the current state of the report. If a name is not explicitly provided, the report name changes if the source events and dimensions are renamed. See "Tealeaf Event Manager" in the *IBM Tealeaf Event Manager Manual*.

Save Report

You can save the current report to the server. To save your report, click the Save Report icon in the toolbar. Enter a name for the report and click **Save**.

Save Report As

To save a report under a different name, click the **Save Report As** icon in the toolbar. Enter the new name and click **Save**.

Note: Any report labels that were part of the original report are not saved in the new version, which contains the default set of report labels.

- The Save Report As command is useful for saving a shared version of a report that you want to control yourself.

Add to Dashboard

You can add the currently displayed report to a dashboard. To add it, click the **Add to Dashboard** icon in the toolbar. The Add to Dashboard dialog is displayed.

- You can add reports to dashboards to which you have access.

  Note: You can add report charts to dashboards only if the report can be charted. See “Chart Window” on page 130.

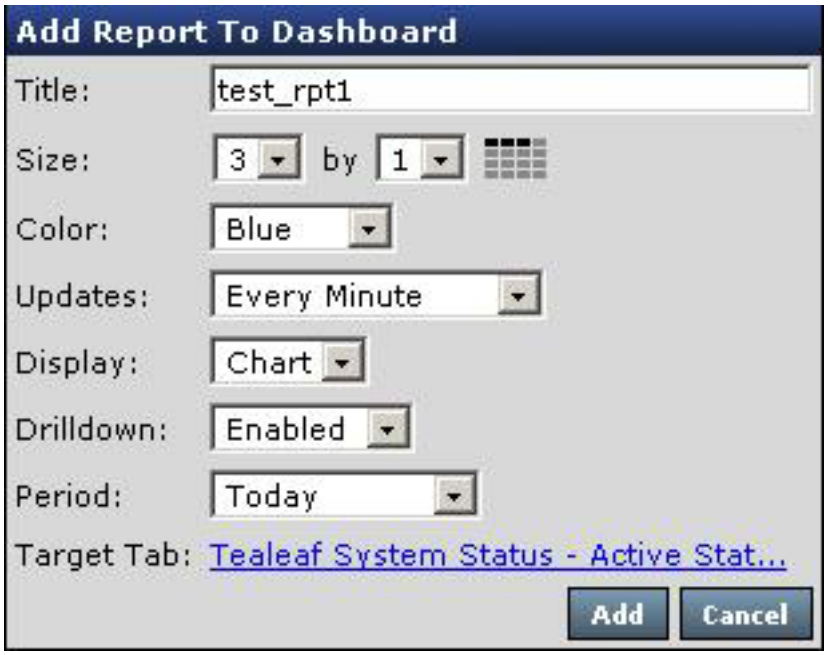


Figure 92. Add to Dashboard

Property
Description

Title You can edit the title that is displayed in the dashboard without changing the title to the report.

Size Define the size of the report as it is displayed in the dashboard. These values are grid blocks, which are reflected in the image to the right of the sizing parameters.

Color Specify the base color of the report.

Updates
You can configure how frequently the dashboard report queries for updated information from the saved report.

Note: If the report that you are adding to the dashboard references data from completed sessions only, configuring an update interval to be more frequent than the interval at which the data collection process is run is not useful. By default, data collection occurs every 5 minutes; in this case, report updates must not occur more frequently than a five-minute interval for reports that contain completed session data only. If the report references data from active sessions, you can set the update interval to be more frequent than every 5 minutes. Depending on the configured report and the number of reports in the dashboard, there can be performance impacts.

Display
Select the component of the report to display in the dashboard: `Chart` or `Table`.

- You can add both as separate components to the same dashboard.

Period
Select the data period to display in the dashboard.

- Dates that do not contain data are zero-filled.

Drilldown
When `Enabled`, dashboard users can drill into the dashboard data to review the underlying report.

Target Tab
To select the dashboard and its tab to which to add the report, click **<Select a Tab**. Select the dashboard and tab to which to add the report.

- See "Configuring Dashboards" in the *IBM Tealeaf cxView User Manual*.
- For more information about the properties, see "Configuring Dashboards" in the *IBM Tealeaf cxView User Manual*.

Import/Export

This information describes the various tasks that are related to import and export of reports in Tealeaf.

Report Schedules

In the Schedule Report dialog, you can configure a snapshot of any report at a specified time or times for delivery to email addresses that you list.

- For more information on configuring access permissions for reports, see "Report Access Permissions" in the *IBM Tealeaf cxImpact Administration Manual*.

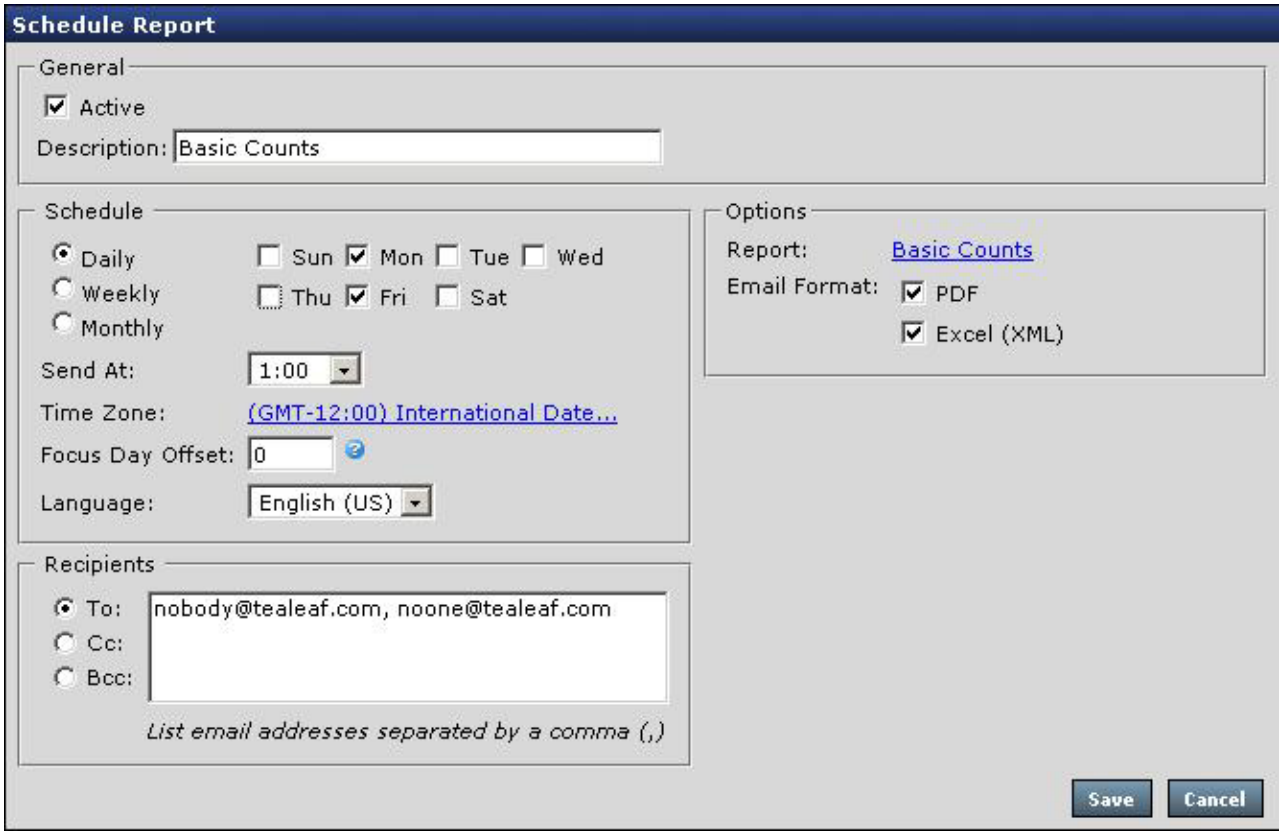


Figure 93. Schedule Report

To schedule a report:

Note: To configure and deliver report snapshots from the Portal, you must enter a valid email address for your user account. See "My Settings" in the *IBM Tealeaf cxImpact User Manual*.

1. General: Configure the following general properties:
   a. To enable the report schedule, click the**Active** check box at the top of the window.
      - To disable, clear this check box.
   b. In the**Description** field, enter a meaningful name for the schedule. This description is available to users who are looking to configure snapshots. See "Report Manager" in the *IBM Tealeaf Reporting Guide*.
2. Schedule: To configure the schedule:
   a. Select the interval of the schedule: `Daily`, `Weekly`, or `Monthly`. Depending on your selection, the following options are available:
      - Daily: Select the day or days of the week when you want the report to be run.
      - Weekly: Weekly reports can be run only once per week.
      - Monthly: From the drop-down, select the day of the month when the report is run.
   b. Select the time of day when the report is run.
   c. The time of execution is relative to the selected time zone. By default, reports are run at GMT time.

- To run at the configured time for a different time zone, click the**Time Zone** link. Select the new Time Zone and then click **Select**.

d. By default, a run report includes data from the day when the report is run. To send data from a different day, enter in the Focus Day Offset textbox the number of days before the report execution date from which to extract data for the report.
   - For example, if you are generating a report at 1:00am in the morning, you can report on data from the previous day. The Focus Day Offset must be set to 1.

e. To deliver the report in a different language, select one of the available languages in the Language drop-down.

3. Recipients: In the recipients list, you can configure the list of users or email aliases to whom to send the report.
   - Separate multiple addresses by a comma (**,**).
4. Options: To change the report to send, click the**Report** link. Select one of the saved reports to which you have access in the Report Selector. Click **Select**.
   a. You can send the report in PDF or Excel-readable HTML or both.
5. To save the report as configured, click **Save**.
6. The report snapshot is run according to the configured scheduled and delivered immediately to the listed email addresses.

Tealeaf administrators can schedule the execution of daily, weekly, or monthly reports for delivery to selected users in PDF or Excel format.

- See "Report Manager" in the *IBM Tealeaf Reporting Guide*.

Export

You can export your configured report to Excel or PDF.

To export:

1. Click the **Export Report** ( ) icon.
2. Select the type of export:
   - Excel - Export data in XML format readable in Excel.
   - PDF - Export the report into PDF format.
   - Mail - Export the report and email it. See “Email report.”

Email report

To email a report:

Note: To configure and deliver report snapshots from the Portal, you must enter a valid email address for your user account. See "My Settings" in the *IBM Tealeaf cxImpact User Manual*.

1. Select the format of the attachment:
   - `Send PDF` - send a PDF
   - `Send XLS` - send an Excel spreadsheet
2. If needed, you can add a Message to the email.
3. In the Recipients text box, enter the email addresses or aliases to whom to send the report.
   - Multiple email addresses must be separated by commas.

4. To send the report, click **Send**.

Report Manager

Report templates can be imported and exported through the Report Manager. See "Importing and Exporting Reports" in the *IBM Tealeaf cxView User Manual*.

Error Messages

You might encounter the following errors in Tealeaf.

Reporting is delayed due to system performance

When the message is displayed in the Report Builder, the data range in the current report intersects a period for which the Health-Based Routing server or Processing servers are spooling hits to disk. Since these hits are spooled, they are not yet collected and aggregated into the report database. Therefore, the reported data from these periods can be incomplete.

- You can review the last times when Canister data was collected and aggregated for reporting. See "System Status" in the *IBM Tealeaf cxImpact Administration Manual*.
- This message can be hidden from display in reports if wanted. See "CX Settings" in the *IBM Tealeaf cxImpact Administration Manual*.

When using Compare functionality with dimensions, dimensions with a static list of values (for example, Day of Week) will be compared value-to-value

When you compare data between two periods while you use non-segment dimensions, the complete message can be displayed:

```
When using Compare functionality with dimensions, dimensions with a
static list of values (e.g. Day of Week) will be compared
value-to-value, i.e. Monday (Focus) to Monday (Compare). When
dimensions without static values are compared (e.g. Day and Hour),
the Focus and Compare ranges will simply be displayed side by side
(first Day and Hour of Focus range with first Day and Hour of
Compare range).
```

If you include dimensions on the x-axis or y-axis and applied a Compare period, the data in the dimension determines how the report data is displayed.

- Dimensions with static values, such as Day of Week, are displayed by using individual value that is compared to individual value.
- Dimensions such as Day and Hour do not have static values. Values for these dimensions are displayed side-by-side in the report.

Report query returned too many rows (> 1,000). Please filter or TopN your request.

To prevent runaway database queries that impede the Data Service, the Portal, and your browser, a limit of 1,000 rows of returned data is imposed on any configured report. If your report returns more than 1,000 rows, the preceding message is displayed, and the results are not delivered to your browser for display. You must adjust your report configuration and refresh the data.

- To correct the report, you can apply a dimensional filter to narrow the range of reported values, or you can filter dimensions to display a TopN number of values.
- Now, no limits are imposed on the number of rows in the report, which means that the number of events, functions, and dimensions are not impacted by this limit.
- Browser performance can be impacted by results that contain fewer than 1,000 rows. Where performance is a factor, you must attempt to change your report characteristics to reduce the number of rows of data.

This report uses one or more dimensions whose oldest observed values have been trimmed. As a result, this report may not reflect all originally observed dimension values.

To prevent the runaway growth of dimension values in the database, Tealeaf imposes the automatic trimming of dimension values, when the number of values that are stored in the database exceeds a predefined limit. When the number of values that are stored for an individual dimension exceeds the limit, the oldest dimension values are removed from the database.

You can configure this limit to be a high number, which is useful for dimensions such as `URL (Normalized)`. You cannot completely disable this feature.

As part of this trimming of dimension values, all instances of the removed values are marked as `[others]` since the value is no longer among the available set.

What you can configure is whether the marking of values as `[others]` is applied to all stored report data.

Note: The marking of all trimmed values as `[others]` for a dimension is a resource-intensive process. Depending on this number of values that are trimmed and the number of impacted reports, this process can take a long time.

You can choose to not change stored report data to `[others]`. However, in this case, discrepancies can be introduced between the counts for events in a report that is not filtered by a dimension and the counts for events in the report that is filtered by this dimension.

Suppose that:

- Dimension A contains the values `Apple` and `Orange`.
- The automated data trimming operation removes these values from `Dimension A`.
- The report data is not updated to mark these values as `[others]`.
- The trimmed values is previously recorded with `Event A`.

If you create a report in the Tealeaf Report Builder by using `Event A` and do not filter it by any dimension, the counts of the events are already aggregated. So, the report data reflects the accurate total of event occurrences.

If you then apply `Dimension A` which is trimmed, your report on `Event A` does not include any counts that were recorded when `Apple` and `Orange` were detected. As a result, these counts cannot be summed to reach the count of the unfiltered parent event.

This discrepancy in the report counts can be resolved only when the report data is updated to mark trimmed values as [others].

The choice of whether to update reporting data to use the [others] value is configurable.

Note: If you do not update counts in the reporting data as part of your dimension trimming, these updates are not completed if the option is enabled later.

See "Data Management for Dimensions" in the *IBM Tealeaf Event Manager Manual*.

- After you have review the results of the trimming operation in your reports, you can reset the trim flag on the dimension so that the Portal message is no longer displayed when the dimension is used in reports. See "TEM Dimensions Tab" in the *IBM Tealeaf Event Manager Manual*.

There were not enough days of data to perform the calculation as specified due to the data retention settings. Values below have been calculated using available data.

When there is insufficient data to complete a function calculation, this message is displayed.

When applied to event counts, some functions, such as a rolling average function, require a preconfigured number of data points to complete the calculation in a satisfactory way.

Depending on the data retention settings that are applied to the data used in the event, there may not be enough days of data to produce enough data points that are required for the calculation. For example, if you are calculating a Same Day of Week average, the default number of weeks of data that is required for the calculation is 4. If you are retaining only three weeks of hourly data in your system, then there is not sufficient data to complete the calculation according to the configuration settings.

In these instances, the calculations are made based on the available data points, with any adjustments made to accommodate the smaller data set. In the previous example, the Same Day of Week average is computed by using three data points, and the preceding message is displayed.

The selected range exceeds the retained data range for hourly data. The returned data may not be fully populated.

Tealeaf reporting data is aggregated and stored by hour and by day. The most recent data in the system is stored by hour. As data ages out of the specified hourly data range, it is re-aggregated and stored as daily data.

Depending on the date range that is selected in the report, the following results can be observed:

- If the date range of the report extends past the hourly data cutoff, the report uses daily data to complete the older date ranges.
- If the selected date range is valid for daily data only and is grouped by using an hourly time dimension (such as Hour of Day or Day and Hour), then the report returns no data because the daily data cannot be broken down by hour.

Note: By default, the Report Builder uses the Hourly dimension to filter reports with a selected date range of a single day. If this filter is applied against a single date that includes only daily data, then the report contains no data at all.

However, if you configure a report with a date range that includes daily and hourly data and is configured to use a daily level dimension, you can discover that the zero-filled days in the hourly report are now populated. The older data in the report that is outside the hourly date range is populated by the stored daily data, while the daily date range that is inside the hourly date range is populated by hourly data that is aggregated in an ad hoc manner for display in the report (while the data stored in the database remains in hourly form).

You can modify the date ranges for hourly and daily data retention.

- See "CX Settings" in the *IBM Tealeaf cxImpact Administration Manual*.

Beginning in Release 8.7, the hourly and daily data ranges are configured by default to exhibit the preceding behaviors for performance reasons.

- In previous releases, hourly and daily data ranges overlapped from the current day backward in time to the end of the shorter of the two ranges.
- You can modify the method and frequency of data aggregation, which can affect system performance.
- See "Data Aggregation and Retention" in the *IBM Tealeaf cxImpact Administration Manual*.

Chapter 4. Report Manager

Through the Report Manager, you can schedule execution of event, dimension, and Top Mover reports and manage report access as well. Each Tealeaf user creates reports in the Report Builder or the Top Movers page can manage their reports in the Report Manager.

- To access the Report Manager, select **Configure** > **Report Manager** in the Tealeaf Portal.

In the Report Manager, you can manage multiple types of reports and schedule the execution and delivery of these reports through email.

Note: To configure and deliver report snapshots from the Portal, you must enter a valid email address for your user account. See "My Settings" in the *IBM Tealeaf cxImpact User Manual*.

- Access to the Report Manager page is governed by permissions in your user account. See "CX User Administration" in the *IBM Tealeaf cxImpact Administration Manual*.
- Event-based and dimension-based reports are configured in the Report Builder. See Chapter 3, “Tealeaf Report Builder,” on page 105.
- For more information about configuring access permissions for reports, see "Report Access Permissions" in the *IBM Tealeaf cxImpact Administration Manual*.
- Top Mover reports contain the deviations in values that you choose to track.
  - For more information about creating Top Movers, see "TEM Top Movers Tab" in the *IBM Tealeaf Event Manager Manual*.
  - For more information about creating Top Mover reports, see “Analyzing Top Movers” on page 45.
- In the Report Manager, you can assign labels for your reports. These labels are useful for organizing how reports are displayed in the reporting building tools. See “Report Labels” on page 159.
- You can also import and export report templates from the Report Manager. See "Importing and Exporting Reports" in the *IBM Tealeaf cxView User Manual*.

Overview

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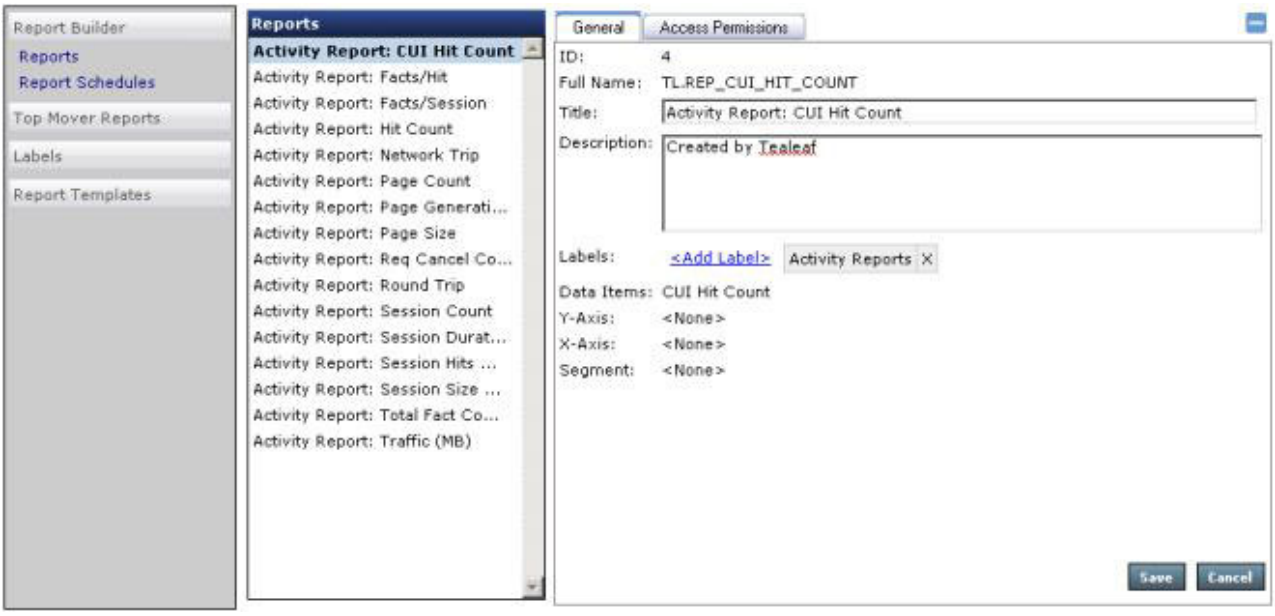

Figure 94. Report Manager

The Report Manager is divided into three panes. To configure report permissions or schedules, you work left to right across the screen.

1. Left pane: Select the type of report and whether you are configuring permissions or schedules for it. See “Report Type.”
   - For more information about importing and exporting report templates, see "Importing and Exporting Reports" in the *IBM Tealeaf cxView User Manual*.
2. Center pane:
   - Report Permissions: Select the type of report. “Select Report” on page 154
   - Report Schedules: Select or create a schedule for a report. “Report Schedules” on page 156
3. Right pane:
   - Report Permissions: Configure report permissions or delete the report. “Report Properties” on page 154
   - Report Schedules: Configure the schedule. “Report Schedule - General Tab” on page 156.

Report Type

Figure 95. Report Type

In the left pane, you can select the type of report to configure. Beneath each report type are the following options:

1. Reports: Depending on the type of report, you can click this option to display the available reports of that type in the center pane. See "Select Report" on page 154.
   - For more information about Report Builder reports, see Chapter 3, "Tealeaf Report Builder," on page 105.
   - For more information about Top Mover Reports, see "Analyzing Top Movers" on page 45.
2. Report Schedules: If you select this option, the currently available reports are displayed in the center pane. See "Report Schedules" on page 156.

Select Report

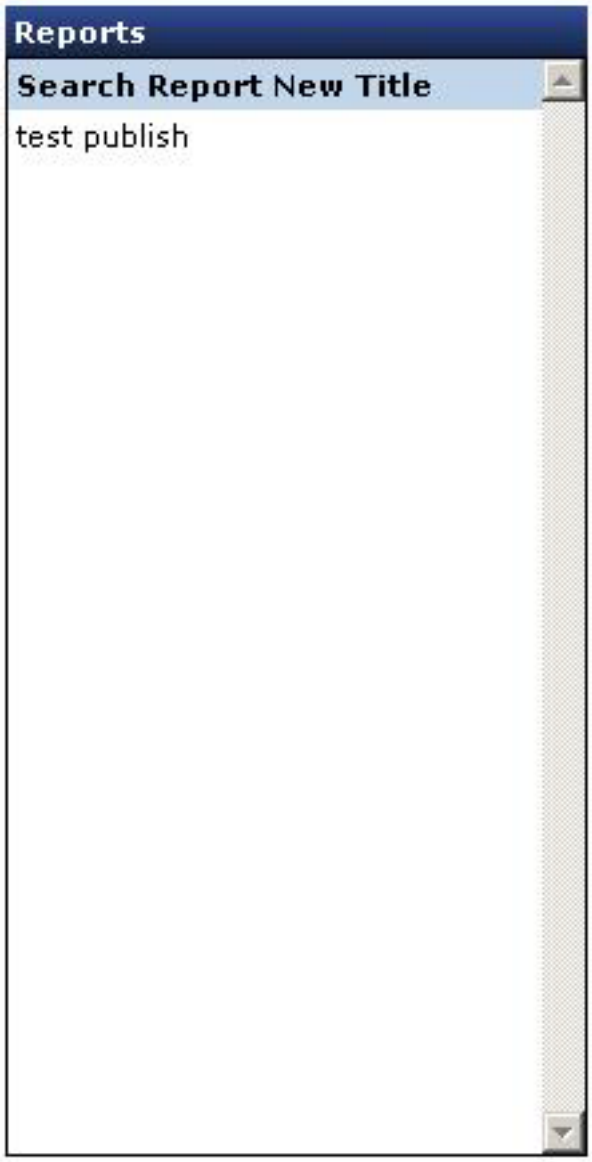

Figure 96. Select Report

In the middle pane, you can select the report that you want to edit. The report properties are displayed. See "Report Properties."

- For more information about deleting a report, see "Deleting a report" on page 155.

Report Properties

In the right pane, you can configure the properties of the selected report through two tabs.

Note: To email report snapshots, you must configure an email address in your user account. It is recommended that you do not create snapshot schedules from a Tealeaf administration account.

- See "My Settings" in the *IBM Tealeaf cxImpact User Manual*.

General Properties Tab

The General tab contains general information about the report.

Note: These properties are read-only.

Properties

Description

ID Internal index for the report

Full Name
Full internal identifier for the report

Title The title of the report, as it is displayed in the report

Description
A textbox where you can enter details or notes about o the report

Labels Any report labels that are displayed to the report.
- To remove a report label, click the X next to it.
- See "Report Labels" on page 159.

cxResults Compatible
If the report contains events that are configured to be excluded from cxResults, this value is `No`. Incompatible reports and scorecards cannot be loaded with cxResults data.

Data Items
All data metrics in the report, including events, ratios, functions.
- For Report Builder reports, the lists of dimensions on the X-axis, Y-axis, and Segment are displayed, too.
- For Top Movers reports, the Segment dimensions are listed.

Y-Axis Any dimensions that are added to the Y-axis

X-Axis Any dimensions that are added to the X-axis

Segment
Any dimensions that are added as segment filters for the report

For more information about these properties, see Chapter 3, "Tealeaf Report Builder," on page 105.

Deleting a report

To delete a report, select it in the middle pane and then click the Minus ( ) in the right pane.

Access Permissions Tab

On the **Access Permissions** tab, you can select the groups that are administrators and users of the selected report.

Note: While additional users can be given administrator permissions to a specified report, the owner of the report is always the creator of it. You cannot reassign ownership of a report.

To share the report, you can allow selected Tealeaf user groups to be Administrators or Users for the current report.

- Administrators - Users in these groups can view and edit the report.

  Note: An Administrator may accidentally remove his or her user group from the list, which prevents further editing of the report from those accounts.
- Users - The users in these groups can view the report yet are forbidden from editing it.

  Note: If a user group has User or Administrator access to a report, all members can access the report in the Report Builder or Top Movers report.

When you create a report, you are automatically assigned as an Administrator forever.

- To create a personal report that is a variation of an existing one, copy the report through the report page.
  - See Chapter 3, "Tealeaf Report Builder," on page 105.
  - See "Analyzing Top Movers" on page 45.

Report Schedules

Reports can be scheduled for execution on a daily, weekly, or monthly basis at any time for a pre-configured reporting period relative to the date of execution. Reports can be delivered to a configured list of email addresses in PDF or Excel format.

Note: Non-administrator users can configure report schedules to which they have viewing or editing permissions. The Tealeaf admin can see and configure all schedules.

Icon	Description
	To delete a report schedule, select it in the center pane and click the Minus icon.
	To create a report schedule, you can click this icon or click the **<Create Schedule** link in the center pane. See "Report Schedule - General Tab." **Note:** You can create report schedules that are based off other report schedules. Select the report schedule to use. Then, click the Create Schedule link. The General tab is pre-populated with values inherited from the original report schedule.

Report Schedule - General Tab

Report schedules are configured in the General tab.

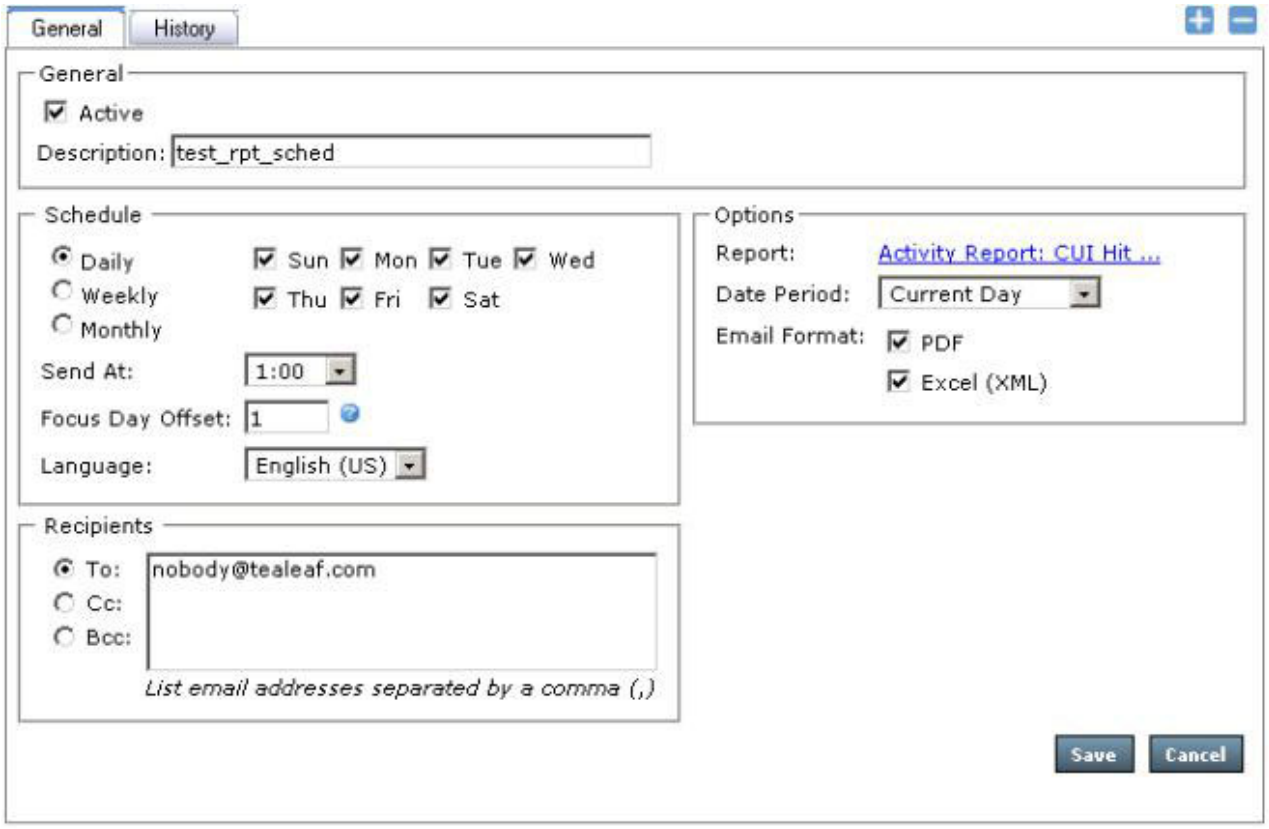

Figure 97. Report Schedule - General tab

Properties

Description

`Active`

Click the check box to enable the report schedule.

`Description`

This user-friendly description is displayed in the Portal.

`Schedule`

Schedule the report by type:

- `Daily` - Select the days of the week when the report is to be run.
- `Weekly` - Select the single day of the week when the report is to be run.
- `Monthly` - From the drop-down, select the day of the month when the report is to be run.

`Send At`

Select the time when the report is run and delivered.

- Time is based on the Tealeaf system time zone. See "Configuring the System Timezone" in the *IBM Tealeaf CX Configuration Manual*.

`Focus Day Offset`

Optionally, you can configure the number of days before the date of execution that you would like to define as "today" in the report. For example, you might configure a report to be run Tuesday morning to delivers Monday's data to users. In this case, you would set the offset value to 1.

Language
Select the language to use in the report from the drop-down.

Recipients
Enter a comma-separated list of email addresses or aliases to whom to send the report.

Report
Click the link to select the report to send. Select the report and click **Select**.

Date Period
(Report Builder reports only) Select the report date period from the drop-down list. The period is defined relative to the date of the report execution, factoring the `Focus Date Offset`. For example, a report run on Sunday evening with an offset of three days with a Date Period of `Last 2 Days` delivers report data from Wednesday and Thursday.

Note: Top Mover reports are always run with a date range of a single day. This date is derived from the date of execution minus the number of focus offset days.

Email Format
Select the format of the emailed report:

- `PDF` - Report is attached to the email as a PDF file.
- `Excel (XML)` - Report is attached to the email as an XML file that is readable in Excel.

Report Schedule - History Tab

For the selected report, you can review the history of scheduled snapshots.

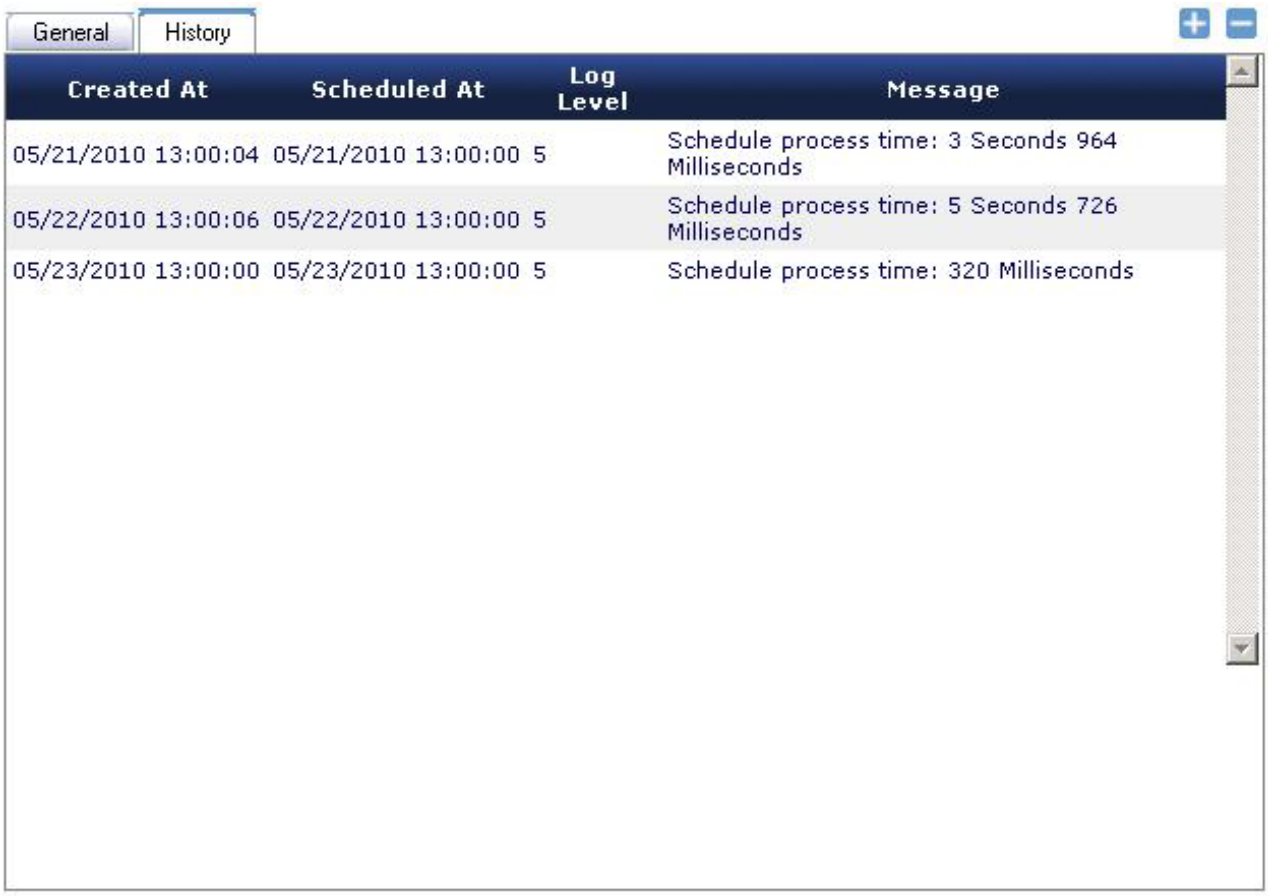

Figure 98. Report Schedule - History tab

Fields Description

Created At
Timestamp of when the report schedule was created.

Scheduled At
Timestamp of when the report is scheduled to be run.

Log Level
Basic status message.

Message
Detailed status message of the report execution.

Report Labels

In the Report Manager, you can create labels for your reports and then assign individual reports that you have created to them. A *report label* is useful for organizing how your reports are displayed in the Tealeaf Report Builder and the Top Movers pages. By assigning labels to reports you create, you can quickly locate and load them when needed.

- Any report label can contain reports from the Tealeaf Report Builder and the Top Movers report page.
- A report can be assigned to multiple report labels.
- All reports are automatically assigned to the Default report label when they are created. You can remove this assignment, if you want.

– All reports must belong to at least one report label. If all labels are removed from a report, it is automatically assigned back to the Default label.

Creating Report Labels

To create a report label, complete the following steps.

1. In the Report Manager, click the**Labels** group in the left navigation pane.
2. Click **Labels**.
3. The available report labels are displayed. Click **<Create Report Label**.
4. Enter a Title value for the report label.
   - When one or more reports is added to the report label, this value is displayed to all Tealeaf users who can access the added reports, either through the Tealeaf Report Builder or the Top Movers report page.
5. To save the report label, click **Save**. The label is listed under Report Labels panel.
   - To cancel creating the report label, click **Cancel**.

Adding Labels to Reports

After you create a report label, you can use the following steps to add the label to reports.

1. In the Report Builder, click the appropriate group in the left navigation pane.
   - To add labels to Report Builder reports, click the **Report Builder** group.
   - To add labels to Top Movers reports, click the **Top Movers** group.
2. In the selected group, click the **Reports** link.
3. The list of available reports is displayed. Select the report to which you would like to add a label.
4. In the General tab, click **<Add Label**.
5. In the Label Selector, select one or more labels to apply to the report.
   - To filter the list, enter a filter string in the textbox. The list of available report labels is updated to display only those labels that match the filter.
6. To apply the selected report labels to the selected report, click **Select**.
7. The list of labels is updated in the **General** tab.
8. To save the changes, click **Save**.

Removing Labels from a Report

To remove a label from a report, complete the following steps.

1. In the Report Builder, click the appropriate group in the left navigation pane.
   - To remove labels from Report Builder reports, click the**Report Builder** group.
   - To remove labels from Top Movers reports, click the**Top Movers** group.
2. In the selected group, click the**Reports** link.
3. The list of available reports is displayed. Select the report from which you would like to remove a label.
4. In the **General** tab, review the displayed Labels.
5. To remove any label, click the**X** icon next to the label.
6. To save the changes, click **Save**.

Deleting Report Labels

Note: Deleting a report label removes the label from all reports but does not alter the report itself.

1. In the Report Manager, click the **Labels** group in the left navigation pane.
2. Click **Labels**.
3. Select the label that you wish to delete.
4. Click the Minus ( ) icon in the upper-right corner of the General tab.
5. To confirm the delete, click **OK**.
6. The report label is deleted, and the label is removed from each report that contained it.

Importing and Exporting Reports

Through the Tealeaf Portal, you can export report data in PDF or HTML format for delivery to designated addresses. You can also export report templates that contain scorecards, dashboards, or Tealeaf reports for use in other Tealeaf systems.

Exporting Report Data

For individual reports, you can export them on demand or according to a schedule you define. Use the following links to access information about export of individual reports.

Table 16. Exporting Report Data

Report Type	On-Demand Export	Scheduled Export
Report Builder report	"Tealeaf Report Builder" in the *IBM Tealeaf Reporting Guide*	"Tealeaf Report Builder" in the *IBM Tealeaf Reporting Guide*
Top Movers report	"Analyzing Top Movers" in the *IBM Tealeaf Reporting Guide*	"Analyzing Top Movers" in the *IBM Tealeaf Reporting Guide*
Scorecard	"Using Scorecards" in the *IBM Tealeaf cxView User Manual*	"Configuring Scorecards" in the *IBM Tealeaf cxView User Manual*
Dashboard	"Using Dashboards" in the *IBM Tealeaf cxView User Manual*	"Configuring Dashboards" in the *IBM Tealeaf cxView User Manual*

Report Templates

Report templates are report definitions that can be passed between Tealeaf environments. Through the Portal, you can export the report templates for scorecards, dashboards, and Report Builder reports.

- See “Exporting Report Templates.”
- See “Importing Report Templates” on page 163.

Exporting Report Templates

Through the Portal, you can export scorecard templates, dashboard templates, and templates for Report Builder types for use in other Tealeaf systems. This feature enables easy migration of reports in development from your test environments to your production environment.

Limitations

The following limitations apply to importing report templates:

1. If an item in a report, such as an event, dimension, or the report itself exists in the destination system, it is used as-is and is not updated. This comparison is based on internal identifiers, instead of display names.
2. The report import feature does not provide full support for any scorecards or reports that reference specific dimension values.
3. You cannot remap events that are used by a report during the import process.
4. You cannot map a report template that is imported to an existing report in the destination system. If five template imports reference a single report, they reference the single instance that is created by the first template import.

   Note: After you import a report template, you cannot re-import it to overwrite the previous version. You must delete the report in the destination system before you attempt to re-import it.

Recommended Workflow

If you are attempting to migrate reports, scorecards, and dashboards from one system to another, Tealeaf recommends the following workflow.

1. Create Report Builder reports with all of the events you want to migrate.
   - These reports must contain events that are used by any dashboards or scorecards that you want to migrate.
   - These reports do not have to be actively used in your Tealeaf environment; the purpose of creating these reports is to bundle up sets of events, which are migrated with the report.
2. Export all Report Builder report templates that you want to migrate or that contain events you want to migrate. Follow the Export Template Steps below.
3. Import them into the destination system. See "Importing Report Templates" in the *IBM Tealeaf cxView User Manual*.
4. Verify that the events and related event objects are properly imported.
5. In the source system, you can choose to export scorecards and dashboards. Follow the Export Template Steps.

   Note: Tealeaf recommends re-creating scorecards and dashboards in the destination system. However, in some cases, it can be problematic to do so. Issues can occur during the import of these items, which do not affect the events that are already imported through Report Builder reports.
6. Import them into the destination system. See "Importing Report Templates" in the *IBM Tealeaf cxView User Manual*.

Export Template Steps

To export:

1. Go to the appropriate configuration page:
   - To export a scorecard, select **Configure** > **Scorecards** in the Portal menu.
   - To export a dashboard, select **Configure** > **Dashboards** in the Portal menu.
   - To export a Report Builder report or Tealeaf report, select **Configure** > **Report Manager** in the Portal menu.
2. Click the**Report Templates** category.
   - For scorecards and dashboards, you must select the item to export.
3. Then, click **Export Template**.

- For Report Builder reports, the Report Select dialog is displayed. Select the report or reports that you want to export.

4. Click **Select**.
5. Click **Save**. The report template is saved to your local system.

   Note: Scorecard and report templates are exported in `.tlt` format, which is a proprietary format of Tealeaf.

Importing Report Templates

Exported or downloaded report templates can be imported into your Tealeaf system.

- Scorecards must be customized to meet individual requirements of the system on which they are installed. After you import a scorecard, you can add, delete, or modify the events that trigger them.
- During import, the event creation process attempts to use existing event definitions on the destination system, including events that were previously created as a part of the current import process.
  - For scorecards and dashboards, regardless of how the original events were used in the source template, if any of those events are exact duplicates except for their names, the event on the destination system will be used whenever event definitions between the source and destination systems are determined to be exact matches.
  - For Report Builder reports, the logic is improved to selectively import events. For this reason, Tealeaf recommends exporting and importing Report Builder reports first.
  - Dependent objects in the report are displayed during the import process.
- Schedules cannot be exported and imported, as the scheduling information can not be valid for the system to which it was imported.

Chapter 5. Reports Provided by Tealeaf

You can review summaries of reports that are provided by Tealeaf during installation.

Activity Reports

Through the Portal, you can monitor activities and processing in your Tealeaf system, including the Short and Long Term Canisters and all Tealeaf servers. Through a series of reports, you can keep tabs on overall activities, page and session metrics, page generation and network round trip times, and counts of visitors and sessions.

These reports are summarized in the Technical Site Metrics dashboard.

Note: These reports can be edited by admin users only. All other users must save the report under a new name and modify the new one.

To access the Technical Site Metrics dashboard:

1. In the Tealeaf Portal, select **Dashboards** > **Technical Site Metrics**.
2. To see the available activity reports, click the**Activity Reports** tab.
   - See "Technical Site Metrics Dashboard" in the *IBM Tealeaf Reporting Guide*.

To see individual reports:

From the Technical Site Metrics dashboard, you can open the underlying report for any displayed dashboard component.

- To see the underlying dashboard, click the**View** ( ) icon. The selected report is opened in the Chapter 3, “Tealeaf Report Builder,” on page 105. Additional information is provided below.
- You can also open any of these reports through the Open command in the Chapter 3, “Tealeaf Report Builder,” on page 105. The names of all activity reports begin with `Activity Report:`.
- See “Activity Reports” on page 22.

Performance Reports

The Performance reports identify the performance of your web application in terms of content delivery and network and render times.

Some of these reports are also available as components of the Technical Site Metrics dashboard.

To access the Technical Site Metrics dashboard:

1. In the Tealeaf Portal, select **Dashboards** > **Technical Site Metrics**.
2. To see the available Performance reports, click the **Performance Reports** tab.
   - See "Technical Site Metrics Dashboard" in the *IBM Tealeaf Reporting Guide*.

To see individual reports:

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From the **Portal** menu, select **Analyze** > **Performance Reports**. See “Analyzing Performance” on page 70.

Event Activity

The Event Activity report displays event counts for currently active events for the selected focus period.

- To see the Event Activity report, select **Analyze** > **Event Activity**.
- See "Event Activity" in the *IBM Tealeaf Reporting Guide*.

Top Movers

Top Movers reports can be created to report on the deviations in captured values for events and dimensions over the preceding four weeks. Using these reports, you can track changes to key indicators, such as conversion rates, for your web application.

- These reports can be included as components of Tealeaf dashboards.

Movers are optional calculations of deviations in recorded values for dimensions and events. These data objects must be created through the Tealeaf Event Manager.

- See "TEM Top Movers Tab" in the *IBM Tealeaf Event Manager Manual*.

To see the Top Movers report, select **Analyze** > **Top Movers**.

- See "Analyzing Top Movers" in the *IBM Tealeaf Reporting Guide*.

Reporting on Segments

A *segment* is a collection of interrelated sessions. Tealeaf provides multiple mechanisms for creating segments (by product):

- (cxImpact) Session segments can be automatically created from search results. See "Searching Session Data" in the *IBM Tealeaf cxImpact User Manual*.
- (cxConnect) Sessions can be created based on queries that are imported from third-party systems. See "Segment Builder Service" in the *IBM Tealeaf cxConnect for Web Analytics Administration Manual*.
- (cxResults) Visitor search results can be used as the basis for creating visitor segments or optionally converted to a session segment. See "Searching for Visitors" in the *IBM Tealeaf cxResults User Manual*.

When a segment is created, you can complete analysis on the segment after which you can configure and display a set of reports that use the segment as the source dataset.

- For more information about managing session segments, see "Managing Session Segments" in the *IBM Tealeaf cxResults User Manual*.
- For more information about session segment reports, see "Analyzing Session Segments" in the *IBM Tealeaf cxResults User Manual*.
- (cxResults) For more information about managing visitor segments, see "Managing Visitor Segments" in the *IBM Tealeaf cxResults User Manual*.
- (cxResults) For more information about visitor segment reports, see "Analyzing Visitor Segments" in the *IBM Tealeaf cxResults User Manual*.

Tealeaf Dashboards

cxView for the Tealeaf CX platform enables the aggregation and reporting of captured data into scorecards and dashboards. Tealeaf provides a set of dashboards that include meaningful reports on various aspects of the captured data and the Tealeaf application.

- See "Using Dashboards" in the *IBM Tealeaf cxView User Manual*.

Reports for Tealeaf Administrators

The following reports are available for Tealeaf administrators.

System Status

The System Status report provides status information from key Tealeaf systems, including:

- Tealeaf Canisters
- The DecoupleEx session agent
- Canister storage devices
- The Health-Based Routing session agent
- Tealeaf databases
- Data Collector

To access the System Status report, select **Tealeaf** > **System Status** from the Portal menu.

- To review the Tealeaf System Status dashboard, select **Summary**.
- To review a report on any of the preceding components, select one of the other options.
- See "System Status" in the *IBM Tealeaf cxImpact Administration Manual*.

System Statistics

The System Statistics report can be used to review summary and detail data that is extracted from Statistics hits that are generated by some Tealeaf components and forwarded through the Windows pipeline for processing. You can review pre-configured or custom reports for statistical information that is collected from the following components, when configured to deliver statistics hits:

- DecoupleEx session agent
- Canisters
- Passive Capture Application

To review the System Statistics report, select **Tealeaf** > **System Statistics**.

- See "System Statistics" in the *IBM Tealeaf cxImpact Administration Manual*.

User Activity

The User Activity report provides user audit information about a set of common Tealeaf user and administrator actions in the Portal. User activity, search, and replay reports can be configured to display information about selected audit events by user group and focus period.

To review the User Activity report, select **Tealeaf** > **User Activity**.

- See "Monitoring User Activity" in the *IBM Tealeaf cxImpact Administration Manual*.

Mobile event reports

When the events are enabled, instances of event data can be counted, or the data values can be broken out for reporting.

Through the Tealeaf Portal, you can create analysis of events. Through the Tealeaf Portal, select **Analyze** > **Report Builder**. The list of available menu options are displayed.

For more information about individual reports for IBM Tealeaf CX Mobile, see **** MISSING FILE ****.

Average Session Size and Length by Platform report

This report shows the average session size in MB per mobile session count and the average mobile session length in seconds per session count. Data is filtered by platform.

This table lists and describes the information in this report:

Value	Description
Platform	The mobile platform that the application is running on. Valid values are: • iOS • Android
Mobile Session Size (MB) per Mobile Session Count	The ratio of session size, in MB, to session count for the Mobile platform.
Mobile Session Length (sec) per Mobile Session Count	The ratio of session length, in seconds, to session count for the Mobile platform.

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Mobile Session Length (sec) per Mobile Session Count	The ratio of session length, in seconds, to session count for the Mobile platform.

Chapter 6. IBM Tealeaf documentation and help

IBM Tealeaf provides documentation and help for users, developers, and administrators.

Viewing product documentation

All IBM Tealeaf product documentation is available at the following website:

https://tealeaf.support.ibmcloud.com/

Use the information in the following table to view the product documentation for IBM Tealeaf:

Table 17. Getting help

To view...	**Do this...**
Product documentation	On the IBM Tealeaf portal, go to **?** > **Product Documentation**.
Help for a page on the IBM Tealeaf Portal	On the IBM Tealeaf portal, go to **?** > **Help for This Page**.
Help for IBM Tealeaf CX PCA	On the IBM Tealeaf CX PCA web interface, select **Guide** to access the *IBM Tealeaf CX PCA Manual*.

Available documents for IBM Tealeaf products

Use the following table to view a list of available documents for all IBM Tealeaf products:

Table 18. Available documentation for IBM Tealeaf products

IBM Tealeaf products	**Available documents**
IBM Tealeaf CX	• *IBM Tealeaf Customer Experience Overview Guide* • *IBM Tealeaf CX Client Framework Data Integration Guide* • *IBM Tealeaf CX Configuration Manual* • *IBM Tealeaf CX Cookie Injector Manual* • *IBM Tealeaf CX Databases Guide* • *IBM Tealeaf CX Event Manager Manual* • *IBM Tealeaf CX Glossary* • *IBM Tealeaf CX Installation Manual* • *IBM Tealeaf CX PCA Manual* • *IBM Tealeaf CX PCA Release Notes*

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Table 18. Available documentation for IBM Tealeaf products (continued)

IBM Tealeaf products	Available documents
IBM Tealeaf CX	• *IBM Tealeaf CX RealiTea Viewer Client Side Capture Manual* • *IBM Tealeaf CX RealiTea Viewer User Manual* • *IBM Tealeaf CX Release Notes* • *IBM Tealeaf CX Release Upgrade Manual* • *IBM Tealeaf CX Support Troubleshooting FAQ* • *IBM Tealeaf CX Troubleshooting Guide* • *IBM Tealeaf CX UI Capture j2 Guide* • *IBM Tealeaf CX UI Capture j2 Release Notes*
IBM Tealeaf cxImpact	• *IBM Tealeaf cxImpact Administration Manual* • *IBM Tealeaf cxImpact User Manual* • *IBM Tealeaf cxImpact Reporting Guide*
IBM Tealeaf cxConnect	• *IBM Tealeaf cxConnect for Data Analysis Administration Manual* • *IBM Tealeaf cxConnect for Voice of Customer Administration Manual* • *IBM Tealeaf cxConnect for Web Analytics Administration Manual*
IBM Tealeaf cxOverstat	*IBM Tealeaf cxOverstat User Manual*
IBM Tealeaf cxReveal	• *IBM Tealeaf cxReveal Administration Manual* • *IBM Tealeaf cxReveal API Guide* • *IBM Tealeaf cxReveal User Manual*
IBM Tealeaf cxVerify	*IBM Tealeaf cxVerify Administration Manual*
IBM Tealeaf cxView	*IBM Tealeaf cxView User Manual*
IBM Tealeaf CX Mobile	• *IBM Tealeaf CX Mobile Android Logging Framework Guide* • *IBM Tealeaf Android Logging Framework Release Notes* • *IBM Tealeaf CX Mobile Administration Manual* • *IBM Tealeaf CX Mobile User Manual* • *IBM Tealeaf CX Mobile iOS Logging Framework Guide* • *IBM Tealeaf iOS Logging Framework Release Notes*

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